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OHIO STATE UNIVERSITY
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LIB...

CHEMICAL SPECIALTIES MFRS. ASSOCIATION — FOUNDED CSMA 1914

Chairmen of executive boards for 1962 of six divisions of Chemical Specialties Manufacturers Association elected at 47th CSMA midyear meeting in Chicago last month.

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insecticides
soaps & detergents
deodorants & disinfectants
cosmetics
industrial & household products
floor waxes & polishes
pet products
specialties

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Frequent damp mopping or wet traffic can make water resistance very important. Overdoing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

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Vol. XXXVII, No. 6, June, 1961

Cover photo: New and reelected chairmen of division executive boards of Chemical Specialties Manufacturers Assn. These men were elected during 47th mid-year meeting of CSMA, held in Chicago, last month.

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SINCE 1934

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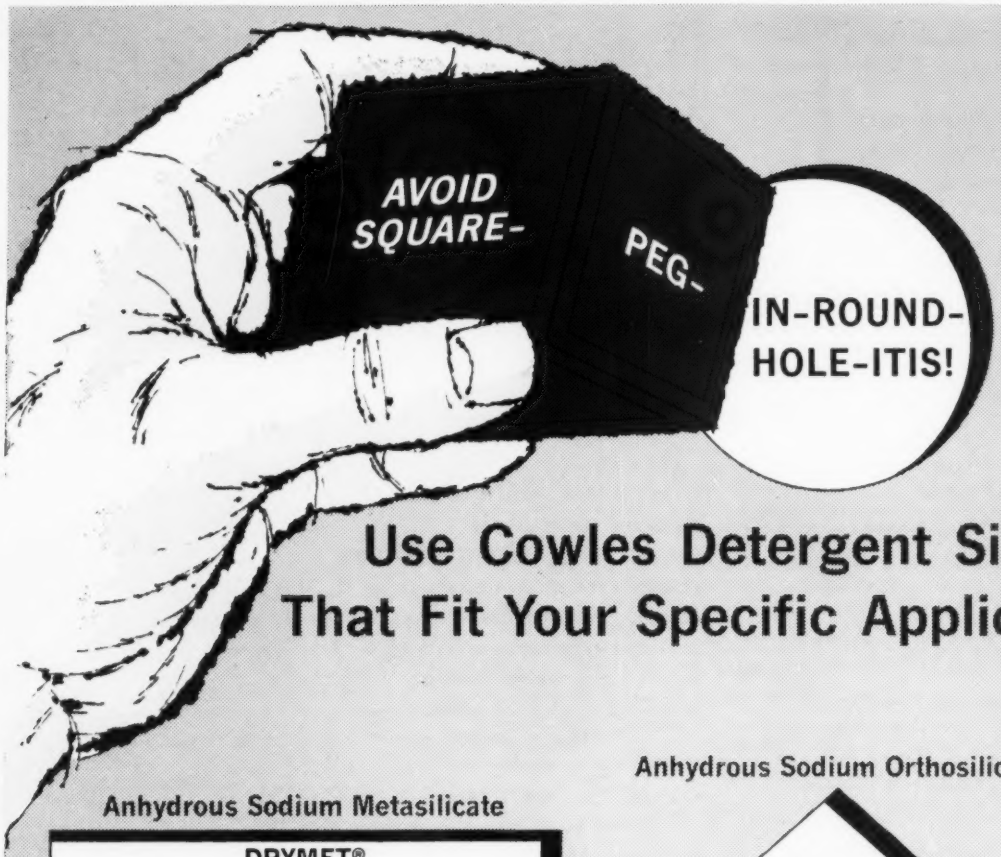

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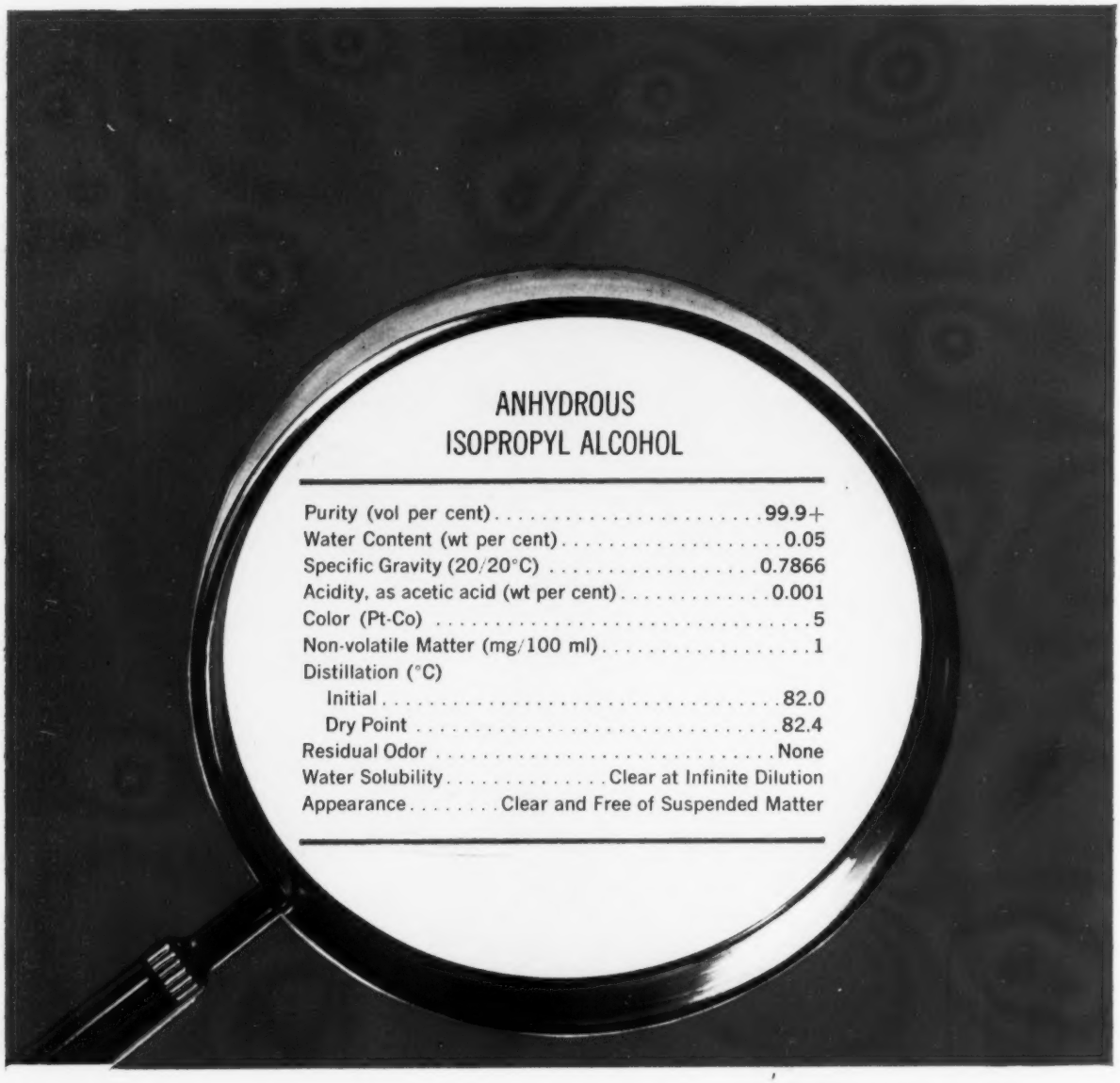
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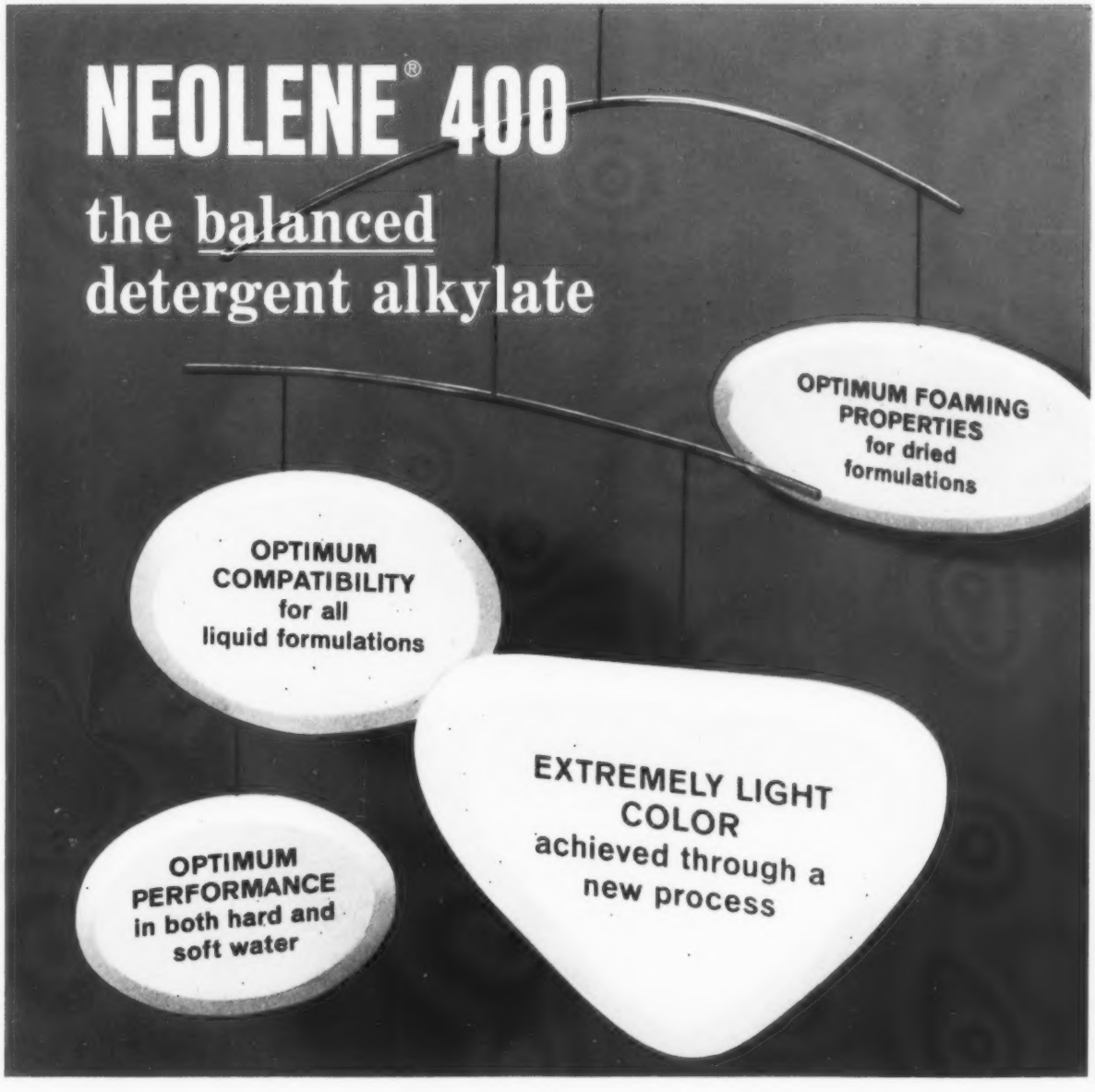
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*California Chemical Company's trademark for its detergent intermediate.

AFTER CLOSING---

Cloroben Names Tufts

Paul H. Tufts has been named sales manager of the industrial division, Cloroben Chemical

Paul H. Tufts

Corp., South Kearny, N.J., a wholly owned subsidiary of Standard Chlorine Chemical Co., it was announced recently. He will also hold the post of assistant to the executive vice-president of the parent company and a similar position with Standard Naphthalene Products Co., another wholly owned subsidiary.

Mr. Tufts was formerly associated with the plastics division of Allied Chemical Corp., New York.

—★—

Richardson Buys Krystall

Richardson Co., Melrose Park, Ill., has acquired the Krystall Chemical Co., Chicago, it was announced recently. The assets and business of Krystall were purchased for cash. The company will continue as Krystall Chemical Co., with Vincent A. Sullivan, Jr., formerly president, serving as vice-president and general manager.

Krystall, founded in 1954, produces a broad line of surfactant chemicals, which are sold primarily to the detergent industry. Richardson, founded in 1858, is a leading producer of industrial rubber and plastic products. Its expansion program into the chemical field began in late 1959 with the acquisition of Plastics Corp. of America, Stamford, Conn., a producer of polystyrene molding and extruding materials. Early in 1960, it acquired Treplow Chemical Co., Paterson, N. J., a producer of surfactant chemicals sold to the detergent, textile, cosmetic, laundry and dry cleaning, and other industries.

—★—

John D. Buckingham Dies

John D. Buckingham, 57, head of Buckingham Associates, 7634 N. Rodgers Ave., Chicago, died May 13. Mr. Buckingham was formerly vice-president and treasurer of Lucien Lelong Perfume Corp., New York. Bill Wingard, long associated with Mr. Buckingham, will head the firm which acts as manufacturer's representatives for VCA, Inc., Bridgeport, Conn.

—★—

Lesch Addresses Analysts

George H. Lesch, president of Colgate-Palmolive Co., New York, speaking before The New York Society of Security Analysts on May 25th stated, "it is the company's objective to conduct an increasingly profitable business throughout the world, characterized by financial stability, efficient productive facilities, high-quality products and aggressive marketing." He reported that domestic operations for 1960 accounted for $275 million in sales, and for slightly over $5 million in net profits, while foreign subsidiaries had sales of $307 million, and net profits of more than $16 million for the year.

Mr. Lesch stated that the firm's prime objective is "to make our domestic business as dynamic, aggressive, and growing as our foreign operations have been. This will be accomplished through work in the following areas: an accelerated program of introduction of new products, acquisitions, accelerated research and development, cost reduction, development of high-quality personnel, and increasing the share of market of our existing product lines."

—★—

Sayman Names Rapport

Sayman Products Co., St. Louis manufacturer of soaps, salves and related products, recently announced the appointment of James Rapport as creative director for the firm. It was also announced that Batz-Hodgson-Neuwoehner, Inc., St. Louis, had been named advertising agency for the company's wholesale products division.

—★—

Lever Appoints Grant

Gary G. Grant has been appointed general manager of the Industrial Division of Lever Brothers Co., New York, it was announced recently. Mr. Grant, formerly project coordinator, succeeds the late John L. Parry.

Mr. Grant, who joined the company as a chemical engineer in 1931, is responsible for the marketing of Lever's industrial detergents, glycerine, fatty acids, and private brand products.

Gary G. Grant

Danville Aerosol Tour

APPROXIMATELY 80 representatives of all facets of the aerosol field toured two of the country's largest contract aerosol filling plants and an aerosol propellant manufacturing unit, May 18. Plants visited were those of Continental Filling Co., Peterson Filling and Packaging Co. and General Chemical Division of Allied Chemical Corp., Danville, Ill.

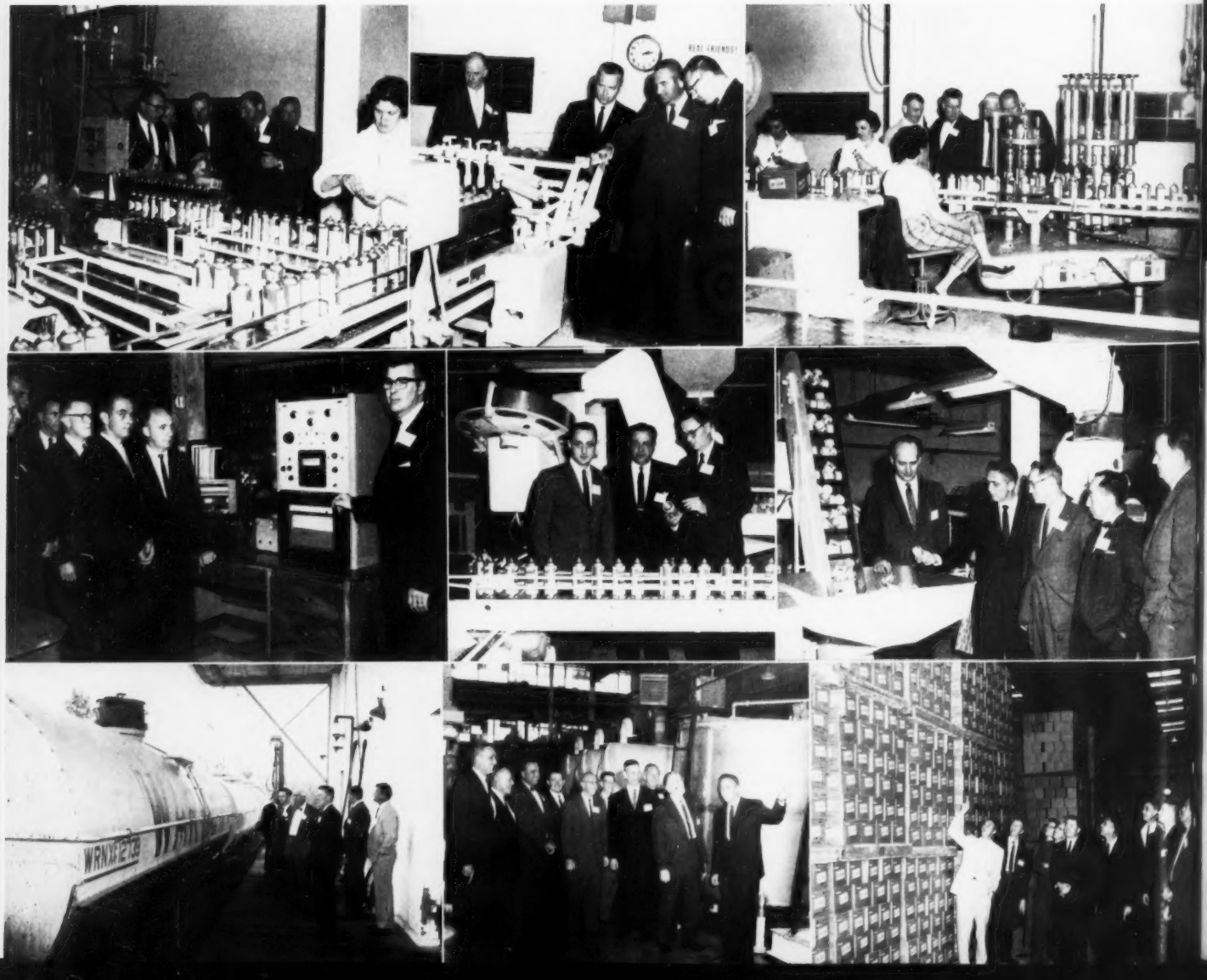
Guests included officials of other aerosol loading firms, customers of the two Danville fillers, local and New York banking officials, and representatives of companies supplying containers, valves, propellants, and insecticides.

Officials of the host companies included: Continental Filling Co., Clarence Carter, president; R.

AT THE PETERSON FILLING PLANT: Top, l. to r.: Julius Hegeler, second from right, explains gasser shaker to J. L. Lee, McLaughlin Gormley King Co.; F. J. Woods and M. Ericson, General Chemical; and Robert Svendsen, Chase Products. Mr. Hegeler, second from right, explains automatic can packer to Messrs. Woods, Svendsen and Lee. Crimping operation observed by Wm. L. Rowley, Peterson Filling; Ridge Sharpless, Gulf Oil, Paul Torpin, MGK and Paul Dwiggins, A. E. Staley.

Second row: Montford A. Johnsen of Peterson Filling explains gas chromatograph to (l. to r.) Jim Hughes, Continental Can; Brooks Ricca, Pennsalt; Al Mulliken, CSMA; Joe Tomlinson, General Chemical, Thomas Clark, Union Carbide; and John Marana, Western Filling. Harry Peterson, right, looks over finished aerosol product with Edward Eilers and Benjamin Hirsch, Turtle Wax, Inc. Bob Peterson, second from left, explains Pneumatic Scale automatic capper in operation to Karl Schmid, Turtle Wax; Stephen Goff, Toni Division, Gillette Corp.; Arthur Yoshinari, Turtle Wax and C. L. Thomas, Crown Cork & Seal Co.

Third row: Looking over rail siding and propellant tank car facilities are, l. to r.: J. K. Shea, Peterson; K. M. Pearson, Corn Products Co., K. J. Bauer, Abbott Laboratories, Ridge Sharpless, Gulf Oil, Robert Cottam, Aerosol Corp. of the South and Herbert Benedict, Pennsalt. Tank facilities in mixing department described by Robert Peterson, extreme right, are viewed by Robert Geuting, DuPont; Howard Gust, Crown Cork & Seal Co.; E. C. Hegeler, Peterson; Thomas Hartley, Union Carbide; John Buchanan, Continental Can; R. G. Schenk and C. A. Brauer, A. E. Staley; A. H. Lawrence, Jr., DuPont; and R. W. Moburg, Rex Research Corp. J. P. Peterson, Peterson Filling, extreme left, shows warehouse stocks and method of palletizing to H. W. Moburg, Rex; R. G. Schenk, A. E. Staley; John Buchanan, Continental Can; Thomas Hartley, Union Carbide, R. J. Peterson, Peterson Filling; Robert Geuting, DuPont; G. A. Brauer, Staley, and E. C. Hegeler, Peterson Filling.



AT THE CONTINENTAL FILLING PLANT: Top row, l. to r.: Visitors and officials of Continental in front of bus which brought them to Danville. Center photo shows Jack Campbell, sales director of Continental, briefing guests in plant's lunchroom prior to beginning of tour. William Donnelly of Continental describing outside propellant storage tanks to Benjamin Hirsch, Edward Eilers, Karl Schmid, Manfred Schafitel, Arthur Yoshinari, and Stanley Svedas, all of Turtle Wax, Inc.

Second row: Chris Canaday, vice-president in charge of operations for Continental, extreme right, points to inventory in warehouse. Looking on, l. to r. are Ernest Sedlmayr of Peterson; M. O. Ericson, General Chemical; and Joseph Lee, McLaughlin Gormley King Co. S. Jack Campbell, extreme right, points to cartoning equipment, as Earl Locker, Al Reynolds (background), and John Kraning, all of Continental; Jack Holtz, Union Carbide; Marshall Firestone, Gulf Oil; Hugh Davis, Chase Products, and Norman Doyle of Continental, look on. Another view of outside propellant storage tanks is pointed to by Clarence Carter, Continental president, extreme left. Others in photo are, l. to r., Frank J. Woods, General Chemical; Thomas Hartley, Union Carbide Chemicals; Charles L. Thomas, Crown Cork & Seal Co., and James Fogerty, Continental Can Co.

Third row: Clarence Carter, Continental Filling, Frank J. Woods, General Chemical; Thomas Hartley, Union Carbide, James Fogerty, Continental Can Co., and Charles L. Thomas, Crown Cork & Seal Co. Production line "supervisors" include, l. to r., Chris Canaday, Continental; Bob Svendsen, Chase Products; Frank Reilly, Soap & Chemical Specialties, M. O. Ericson, General Chemical, Joseph Lee, MGK, and John Kraning, Continental.

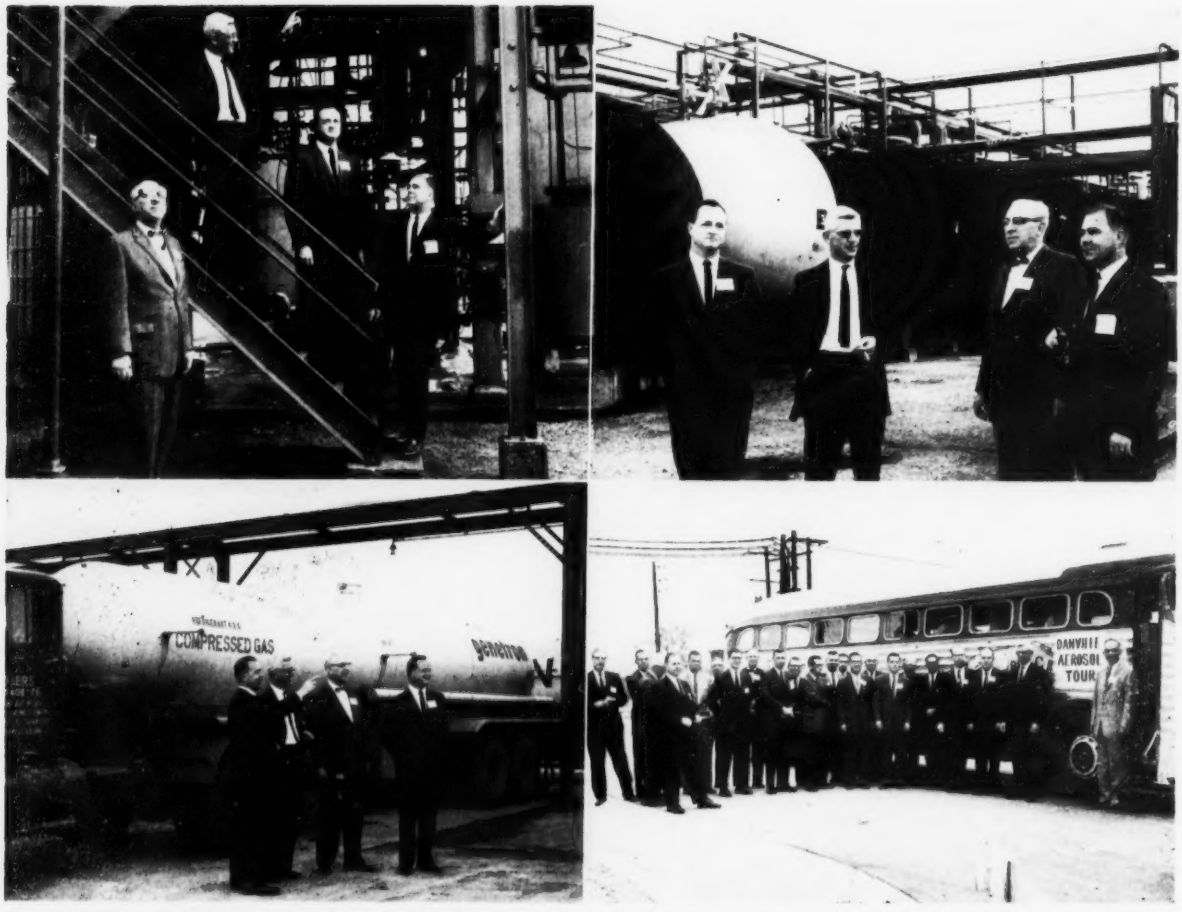
Surrounding Jack Campbell, Continental, in laboratory, are, l. to r., Stanley Svedas, Turtle Wax; Earl Locker, Continental; Hugh Davis, Chase Products; Mr. Campbell; Stephen Goff, Toni Division, Gillette Co.; Marshall Firestone, Gulf Oil, and John Kraning, Continental Filling.

Chris Canaday, vice-president and secretary; J. Allen Reynolds, vice-president in charge of operations; J. A. Miller, treasurer, and S. Jack Campbell, sales director.

Peterson Filling and Packaging Co., Harry Peterson, president; Robert Peterson, vice-president; Edward Hegler, secretary; Julius Hegler, treasurer; Jack Shea, sales director; Montford A. Johnsen, research director; and J. P. Peterson director of purchasing and traffic.

General Chemical Division, Allied Chemical Corp., Charles Raymond, plant manager; Robert Cobb, production supervisor; Robert Faulkner, office manager, Frank Peters, chief chemist; Norman Lanter, technical superintendent, and maintenance supervisor, Milt Lehnis.

Most of the group visiting Danville made the trip from Chi-



AT GENERAL CHEMICAL PROPELLANT PLANT: Top, left, Charles Raymond, General plant manager, standing on steps, points to feature in processing area of plant. Looking on are visitors touring the plant. At right is George C. Dietrich of General Chemical. In photo, top right, propellant storage tanks are shown in background. Tank trucks of propellant, ready for shipment, appear bottom left. Busload of visitors arriving at General's Danville plant appear at bottom right.

cago in two buses the day following the close of the 47th midyear meeting of the Chemical Specialties Manufacturers Assn. Following luncheon at the Danville Country Club the visitors were split into three groups and boarded three buses, for tours of the three plants.

At the plants the groups from each bus were broken up into smaller units which were shown all phases of each plant's operation by officials of the three companies. Research facilities, warehousing operations, processing, filling and storage areas were visited by the groups at the aerosol plants. Following a briefing at the headquarters building of the General Chemical unit, the groups saw the main control panel, compressor room, the processing equipment, storage area and filling operations.

A dinner at the Danville Country Club concluded the first day's activities. The second day of the visit was given over to a golf tournament at the Danville Country Club.

—★—

Carl Lamm Dies

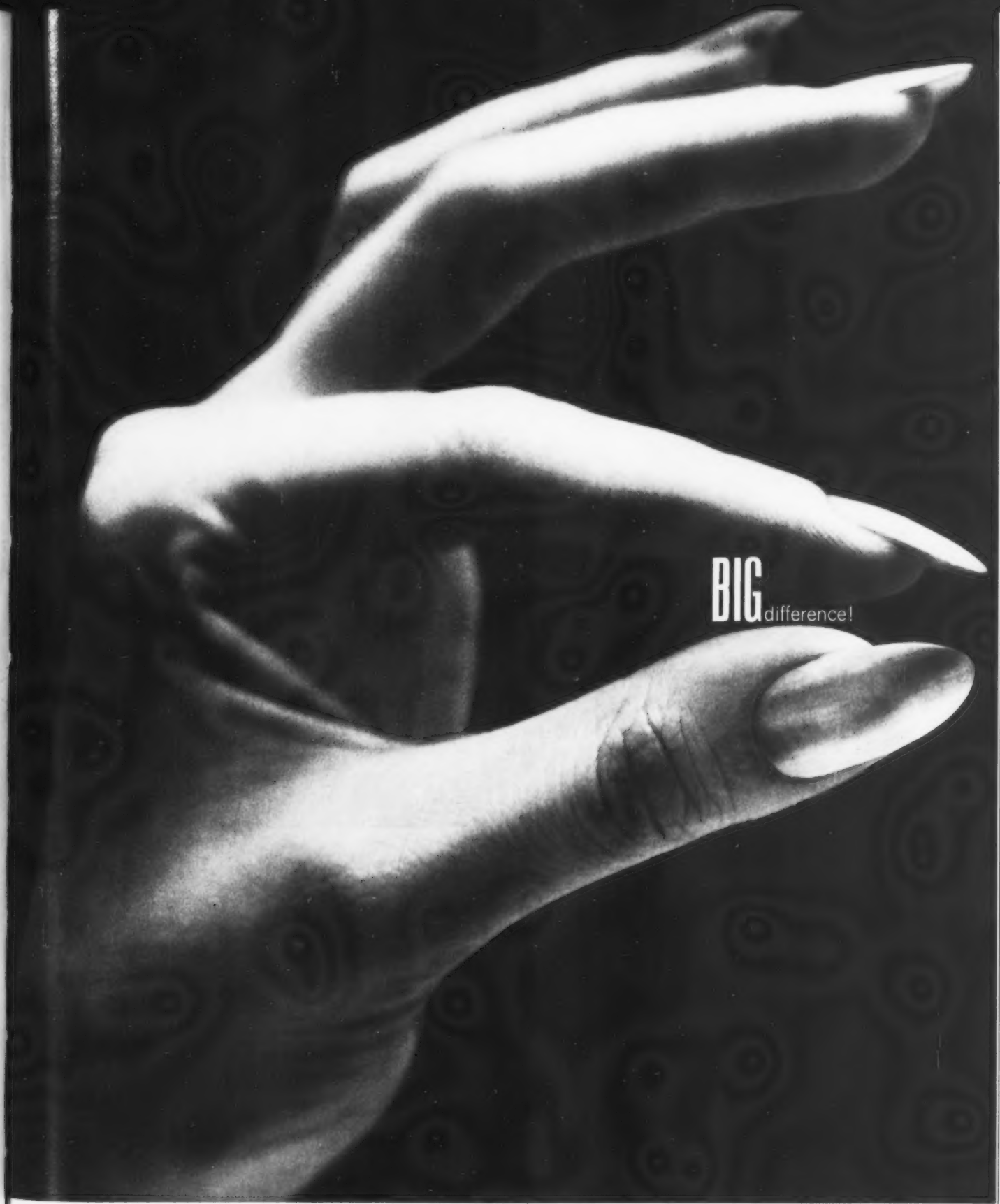
Carl Lamm, president and founder of the Lamco Chemical Co., Boston, died at his home on April 7. Mr. Lamm had been engaged in the development and production of maintenance products and is best known for his achievements in connection with safety floor polishes and for his pioneer work with anti-germ waxes and cleaners for institutional use.

The business will continue under the leadership of his son, George, vice-president and general manager. Mr. Lamm is also survived by his widow, daughter and grandchildren.

—★—

Cowles Adds Two

Cowles Chemical Co., Cleveland, recently announced the addition of two new technical representatives to its laundry products department staff. Bert Benton, assigned to Tampa, Fla., and Russ Keller, assigned to Detroit, have both completed an extensive program of product and technical training, the company reports. Mr. Keller had been a technical sales representative in the Missouri area for 10 years before joining Cowles, and Mr. Benton had been a salesman for 15 years in the field of household and commercial fabrics.



Someone once said that if Cleopatra's nose had been a millimeter longer, it would have changed the history of the world. The littlest difference often makes the biggest difference! Take fragrance. The fragrance of one of your products, for example. Perhaps you're not quite satisfied with it. Perhaps all it needs is a minuscule change. Here is where the man from Felton can help. Working with you, discussing your specific problems, your specific market, he can effect the simplest change that will make a pleasing fragrance an irresistible one. The result of thirty-eight years of experience with perfume oils, this little difference makes the big difference that turns impulse buying into strong, brand loyalty! Felton Chemical Co., Inc., 599 Johnson Ave., Brooklyn 37, N.Y.

Felton

HARDWORKING JEFFERSON CHEMICALS

ETHAN

Monoethanolamine gives woolens a new crease memory

USDA researchers have found that dilute solutions of monoethanolamine will put long-lasting creases in wool. The creases reportedly stay through long exposure to rain and high humidity, and, if the fabric is suitably shrink-proofed, the creases remain after machine washing.

Apparently the monoethanolamine solution affects the molecular structure of the fibers, imparting a "crease memory" to the fabric. Monoethanolamine has the added advantage of being nonvolatile, odorless, safe to handle, and harmless to the fabric. The solution is applied by spraying or dipping with a 0.5 to 2.0 percent solution of monoethanolamine in water, with a small amount of surface-active agent to facilitate wetting. Eventual aim of this process . . . place venerable woolens in the same "wash and wear" class as the youthful synthetics.

Mono-, di-, and triethanolamine are hygroscopic, nonvolatile, mildly alkaline viscous liquids, miscible with water and most alcohols and polyols. Being bifunctional, they can react with acidic materials to form esters or amides or salts, and most of their applications depend upon these versatile features. Some of the diverse applications of these amino alcohols are: gas-scrubbing agents for removal of hydrogen sulfide and carbon dioxide; chemical intermediates in surface-active agents, rubber chemicals, textile specialties, waxes and polishes, herbicides, petroleum demulsifiers, toilet goods, cutting oils, antibiotics and other materials.

Let Jefferson's experienced technical service people help you in any phase of your work with ethanolamines.

OLAMINES

MONO-
DI-
TRI-

MONOETHANOLAMINE

SPECIFICATIONS

Specific gravity, 20/20°C.	1.0170 min.
	1.0190 max.
Boiling range, ASTM, °C.	
IBP:	166 min.
DP:	174 max.
Equivalent weight	61.0 min.
	62.5 max.
Color, Pt-Co scale	15 max.
Odor at room temperature	Mildly ammoniacal

SELECT PROPERTIES

Boiling point, 760 mm.	170.5°C.
Flash point (open cup)	200°F.
Melting point	10.5°C.
Vapor pressure, 20°C	1 mm. Hg.
Weight, 20°C.	8.47 lbs./gal.

DIETHANOLAMINE

Specific gravity, 30/20°C.	1.0900 min.
	1.0950 max.
Equivalent weight	104.0 min.
	106.0 max.
Color, Pt-Co scale	20 max.
Diethanolamine, wt.%	98.0 min.
Monoethanolamine, wt.%	1.0 max.
Triethanolamine, wt.%	1.5 max.
Water, wt.%	0.15 max.

Boiling point, 760 mm.	269°C. (decomposes)
Flash point (open cup)	280°F.
Melting Point	28.0°C.
Vapor pressure, 20°C	<0.01 mm. Hg.
Weight, 30°C.	9.09 lbs./gal.

TRIETHANOLAMINE

	Standard Grade	99% Grade
Specific gravity, 20/20°C.	1.1220 min.	1.1240 min.
	1.1300 max.	1.1270 max.
Equivalent weight	140.0 min.	148 min.
	145.0 max.	150 max.
Color, Pt-Co scale	75 max.	75 max.
Triethanolamine, wt.%	85.0 min.	99.0 min.
Monoethanolamine, wt.%	0.5 max.	—
Diethanolamine, wt.%	15.0 max.	—
Water, wt.%	0.2 max.	0.2 max.
Odor	Not more than slightly ammoniacal	
Iron, ppm.	—	10 max.

Boiling point, 760 mm.	360°C.
Flash point (open cup)	365°F.
Melting point	21.2°C.
Vapor pressure, 20°C	<0.01 mm. Hg.
Weight, 20°C.	9.37 lbs./gal.

Above products are clear and substantially free of suspended matter.

SHIPPING AND HANDLING

Jefferson ethanolamines are available in tank cars, tank wagons in certain areas, and 17E non-returnable steel drums of 470 (mono-), 490 (di-) and 520 (tri-) pounds capacity from the Port Neches plant or terminals throughout the country.

Handling and storage of ethanolamines is a straightforward operation. Storage tanks should be of carbon steel according to approved codes. In general, if low color amine is needed, stainless steel tanks and heating coils are preferable to carbon steel. Storage temperatures in excess of 120°F. should be avoided. Normal precautions to guard against excessive atmospheric moisture should be taken.

TECHNICAL INFORMATION

For detailed data on uses, properties, handling and other aspects of ethanolamines ask for our new ETHANOLAMINES Technical Brochure, or contact our technical service people . . . Jefferson Chemical Company, Inc., 1121 Walker Avenue, P. O. Box 303, Houston 1, Texas.

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CHARLOTTE • LOS ANGELES • SAN FRANCISCO

JEFFERSON CHEMICALS

"turn on" more detergent sales with DEMA liquid controllers!

Stainless steel construction makes this Dema proportioner adaptable to a variety of products. Single push-button operation with *anti back-siphoning feature.* Attaches to faucet, connects to bulk container thru polyvinyl tube, gives perfectly proportioned mixture. Resets automatically to clear water.

MODEL #183: Fixed Proportion
MODEL #184: Adjustable Proportion

Here's a real heavy-duty aluminum alloy and stainless steel dispenser designed for waterless hand cleaners and protective creams. Holds factory-filled disposable slip cover cans of any depth. Self-priming, self-lubricating suction pump is push-button operated. No gears or levers to get out of order.

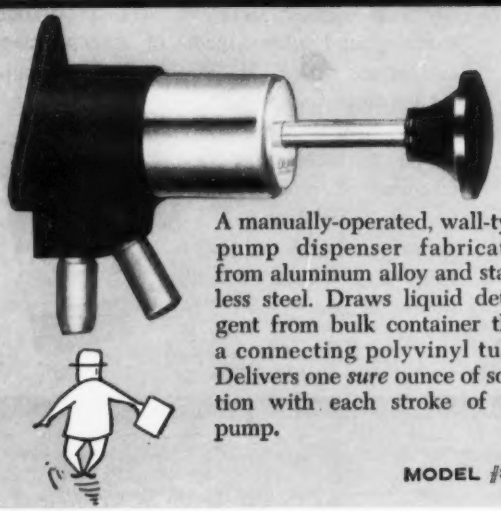
MODEL #310-4: 4¼" Outside Diameter Cans
MODEL #310-5: 5⅞" Outside Diameter Cans

This new dual proportioner by Dema does double duty, selectively, dispensing two liquid products. One push-button controls detergent . . . the other disinfectant. Attaches to faucet and draws fluids from bulk containers thru polyvinyl tubing. Has *anti-back-siphoning feature* and automatically resets to clear water.

MODEL #189: Adjustable Proportion

A stainless steel constructed automatic liquid controller suitable for a variety of products. Single push-button operation. Attaches to faucet, draws liquid concentrate from any size container, dispenses it accurately in any desired proportion. Resets automatically to clear water.

MODEL #181: Fixed Proportion
MODEL #182: Adjustable Proportion



A manually-operated, wall-type pump dispenser fabricated from aluminum alloy and stainless steel. Draws liquid detergent from bulk container thru a connecting polyvinyl tube. Delivers one *sure* ounce of solution with each stroke of the pump.

MODEL #301

DEMA

ENGINEERING COMPANY

Designers and Manufacturers of Automatic Dispensing Devices

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CYANAMID

The diverse properties of Aerosol 22 give it wide use for soaps and detergents. A highly soluble, highly acid- and alkali-stable emulsifier with non-rewetting properties, Aerosol 22 makes an excellent additive for many cosmetics and household and industrial cleaners and polishes. Aerosol 22 has good dispersing qualities and ability to produce small particle-size emulsions – features that impart good spreading or covering properties to such diverse products as beauty creams, floor polishes and shoe polishes.

Potential use of Aerosol 22 as an additive in oven cleaners merits consideration. It has high rinsibility and viscosity lowering properties—it increases penetration and creates no gel structure to inhibit cleaning action. Possibilities of Aerosol 22 in auto cleaners are also interesting—due to non-rewetting properties, ability to remove dirt from hard surfaces and ease of rinsing.

Available in 15- and 50-gal. Liquipaks. For further information, mail coupon today.

OTHER CYANAMID SURFACTANTS OF USE TO THE SOAP AND DETERGENT INDUSTRIES: AEROSOL® OT. One of the most powerful wetting agents and surface-tension depressants available. For use in dry cleaning, wettable scouring powders, and glass cleaning solutions. AEROSOL® OS. A 75% active powder of high alkali stability. For use in scouring powders and heavy industrial cleaners. AEROSOL® 18. A 35% waxy paste for use in heavy industrial cleaners.

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Hooker...prime source for better phosphates

Hooker, with plants at three locations, can provide ample supplies of phosphates. These products are of high purity and are available in both bulk and in bags. Typical of Hooker quality is our sodium tripolyphosphate, 98% pure—highest in the industry.

As a prime producer of sodium tripolyphosphate, tetrasodium pyrophosphate, trisodium phosphate and tetrapotassium pyrophosphate, Hooker is in a unique position to meet the needs of soap and detergent manufacturers anywhere in the country.

ADVANTAGES OF HOOKER PHOSPHATE GRANULES
No matter how you compound your own product, you'll find it advantageous to use Hooker phosphates. If your product is prepared as a slurry and then spray-dried in your own tower, you get the advantage of faster dissolving without lengthy agitation.

CLEARER SOLUTIONS. Where color is important, Hooker's virtually haze-free phosphates meet exacting requirements.

DUST FREE. Hooker's sodium tripolyphosphate and tetrasodium pyrophosphate are freer from dust because they are spray-dried into hollow, ball-like particles. There are no sharp edges to break or crumble. Your own workmen and those of your customers will be spared the annoyance of phosphate dust. Also available in regular density, as are sodium hexametaphosphate and trisodium phosphate.

NO PREMIUM PRICE FOR PREMIUM QUALITY
To check on our premium quality, ask for samples. To check our prices, ask for price sheets.

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CAUSTIC *FAST*

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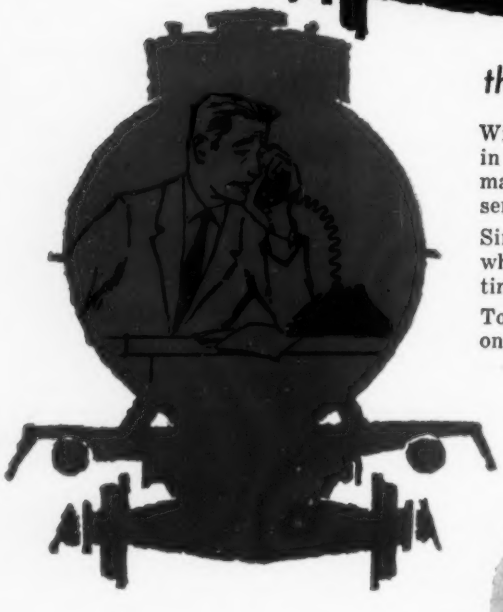

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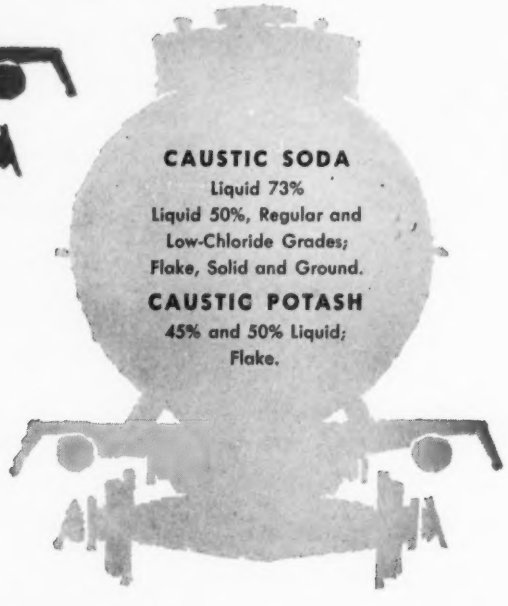
With one of the biggest electrolytic caustic-chlorine plants in the industrial east . . . situated for fast access to railway mainlines, waterways and highways . . . we can give you superior service on both NaOH and KOH.

Since we frequently supply many customers faster than producers who are closer as the crow flies, we may be able to save as much time from order-to-delivery for you, too.

To find out, call us first the next time you need quick service on a spot shipment.



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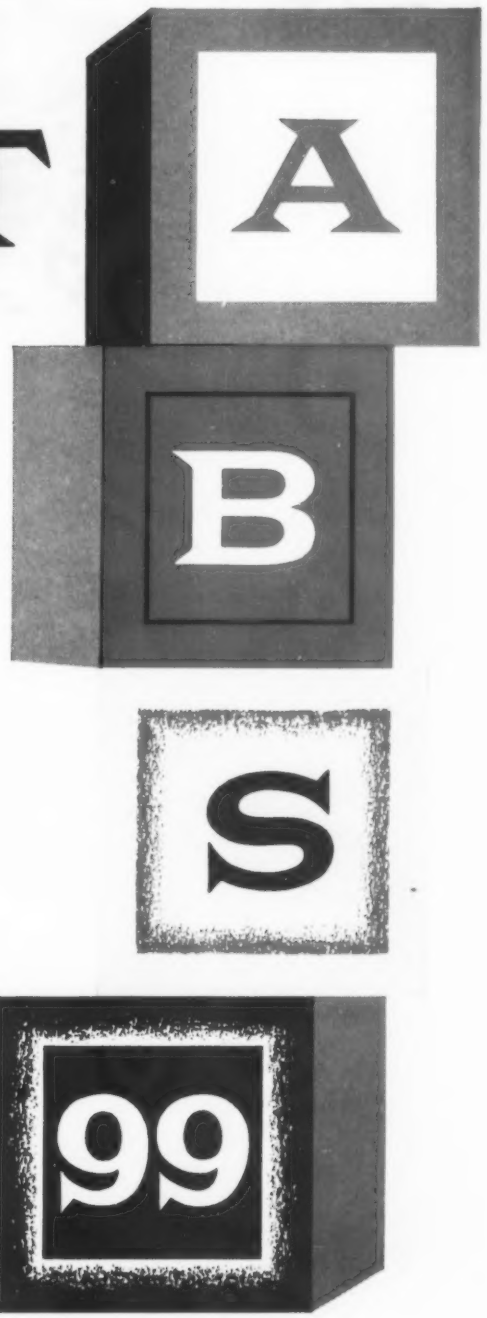

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Pilot ABS-99, dodecyl benzene sulfonic concentrate, offers amazing flexibility for your detergent formulation: for direct neutralization of carbonate or bicarbonate mixtures to give dry compounds; can be mixed with a variety of bases and solvents for oil or water dispersable products; will form low sulfate liquids and pastes of light color for all-purpose liquid detergents; will form amine sulfonates which are directly soluble in oil, alcohol and non-aqueous media.

ABS-99 is made by Pilot's unique *Cold Processing* and gives 14% more active ingredient than ordinary 88% pure sulfonic concentrates. Detergent products can be made more efficient and manufactured at a lower processing cost by using highly concentrated Pilot ABS-99.

Because of its high purity, ABS-99 *may be kept in plain steel containers!*

Write now for technical information and sample.

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NOPCO® HY-PURITY ALKYLOLAMIDES APPROACH 100% AMIDE

Nopco's Hyonic® LA Series offers essential foam stability and detergency

Conventional alkylolamides are only about 60% pure. By-products—unreacted diethanolamine and diethanolamine soap—are allowed to remain to prevent formation of ester-amide at the expense of the true surface-active agent.

Nopco—due to advanced knowledge of the chemical reactions involved—has been able to develop a series of alkylolamides which function efficiently but are almost totally free of unreacted diethanolamine, ester-amide and other by-products. Nopco Hy-purity Alkylolamides, the Hyonic LA Series, offer amide content approaching 100% in contrast to the conventional 60%. Used with other surface-active agents in dishwashing detergents, shampoos, bubble baths, industrial cleansers, light duty liquid cleaners, floor cleaning preparations, and textile detergents, they offer these advantages:

- They build and stabilize foam
- They improve detergency and wetting
- They inhibit rusting of steel containers

Nopco Hy-purity Alkylolamides, when used in liquid detergents, measurably increase viscosity.

The Hyonic LA Series is only one of Nopco's complete line of surface-active agents, products which permit you to tailor your detergents to the desired performance and marketing standards. Nopco offers a single source for all your detergent requirements, plus generous quantity discounts and freight savings. Without obligation, write for technical bulletins on the Hyonic LA Series or information on other Nopco surface-active agents.

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A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU

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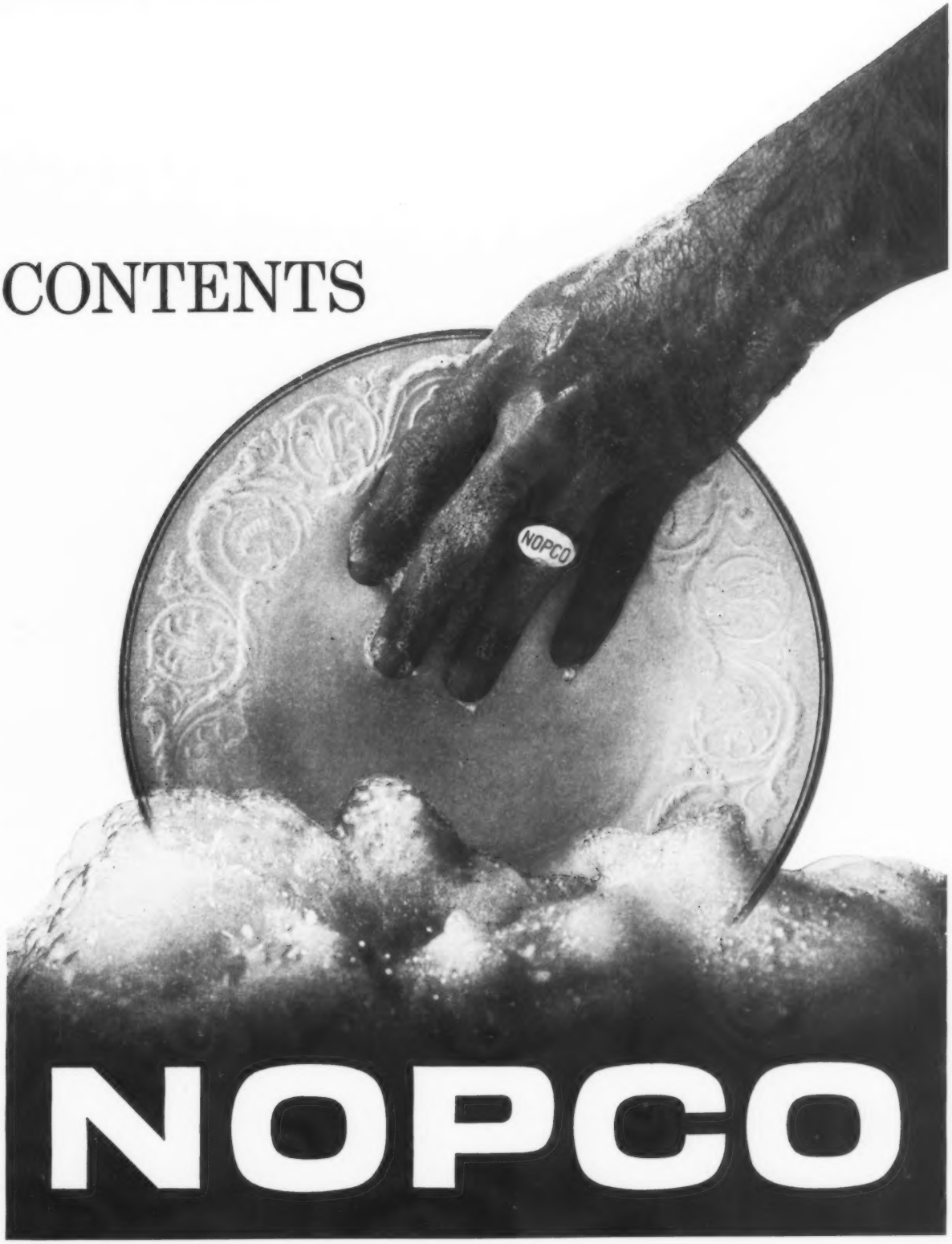
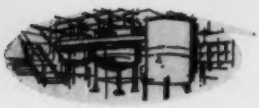
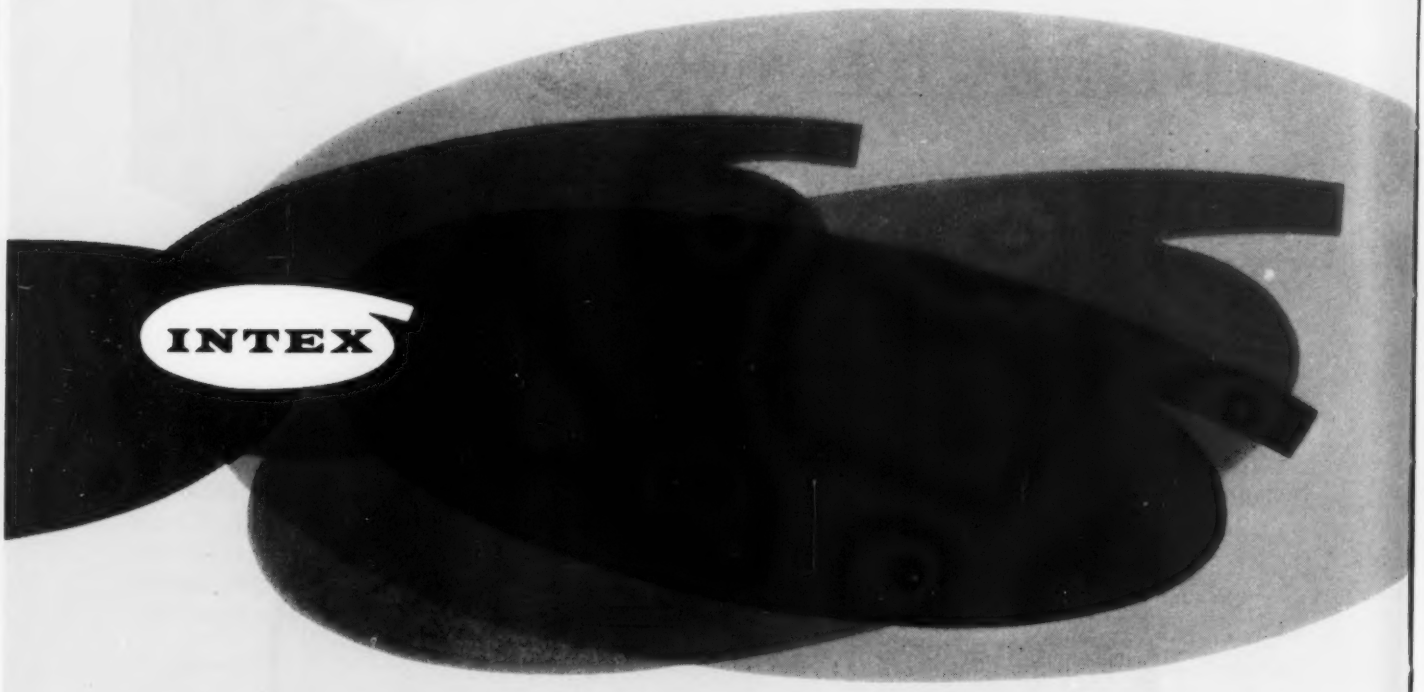
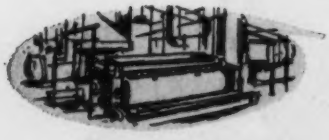




EXPANDING IN EVERY DIRECTION





...and not just physically, either.

Our physical expansion – increased manufacturing facilities, more and better processing equipment, larger work force – are only secondary to us at Intex.

What we consider of primary importance is the carefully planned expansion we are now executing in our sales and technical service staffs and facilities. This is not just a matter of bigness – in enlarging our sales force we are also strengthening it with people fully qualified, fully knowledgeable both in the products they handle and in the needs they must satisfy for you.

Our laboratory and technical service staffs are similarly being reinforced with people whose competence and skill is unquestionable. They are adding to our line products that are the best of their kind available. See for yourself; send for data and samples on any of the following:

INTEXSANS	**INTEXIDES**	**INTEXONS**	**INTEXOLS**
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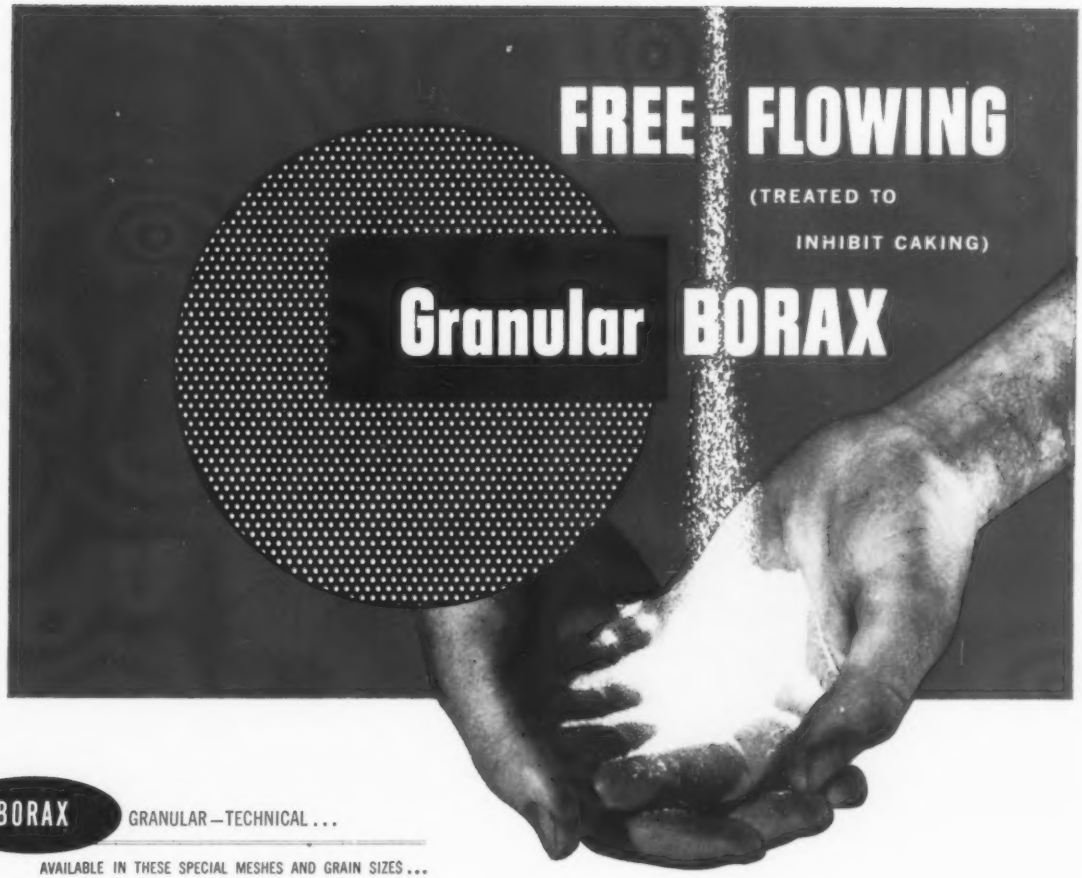

BORAX GRANULAR—TECHNICAL . . .

AVAILABLE IN THESE SPECIAL MESHES AND GRAIN SIZES . . .

Name & Screen Designation	Typical Particle Size Range U. S. Standard Sieve No.		Screen Specification U. S. Standard Sieve No. When Packed	
Granular 8/40 (Special Mesh)	+ 8 + 40	Nil 96.8%	+ 45	min. 95%
Granular 8/60 (Special Mesh)	+ 8 + 60	Nil 80.0%	+ 8 +100	none min. 90%
Granular 30/60 (Special Mesh)	+ 30 + 60	0.5% 69.8%	+ 30 +100	max. 1% min. 80%
Granular 30/70 (Special Mesh)	+ 30 + 70	0.3% 71.0%	+ 30 + 40	max. 1% max. 20%
Granular 30/80 (Special Mesh)	+ 30 + 80	0.8% 76.6%	+ 30	max. 1%
Granular 30/100 (Special Mesh)	+ 30 +100	Nil 86.7%	+ 35 +100	none min. 85%
Granular 40/100 (Special Mesh)	+ 40 +100	Nil 89.0%	+ 40 +100	max 0.5% min. 88%
Granular 40/140 (Special Mesh)	+ 40 +140	0.1% 88.8%	+ 35 +100	none min. 50%
Granular 40/200 (Special Mesh)	+ 40 +200	0.1% 84.1%	+ 30	none
Granular 60/200 (Special Mesh)	+ 60 +200	0.1% 66.7%	+ 60	max. 1%
Granular 80/200 (Special Mesh)	+ 80 +200	2.0% 47.6%	+ 60 + 80	none max. 5%

Powdered Hand Soaps are better performers when borax is part of their make-up. They work better in any water — cut grease quicker — and feel smoother. Our granular borax is free-flowing and 100% soluble. This material is now available to you in any of the many special uniform meshes listed at left. Samples, bulletins, or technical advice can be obtained from the sales office nearest to you. Write today!

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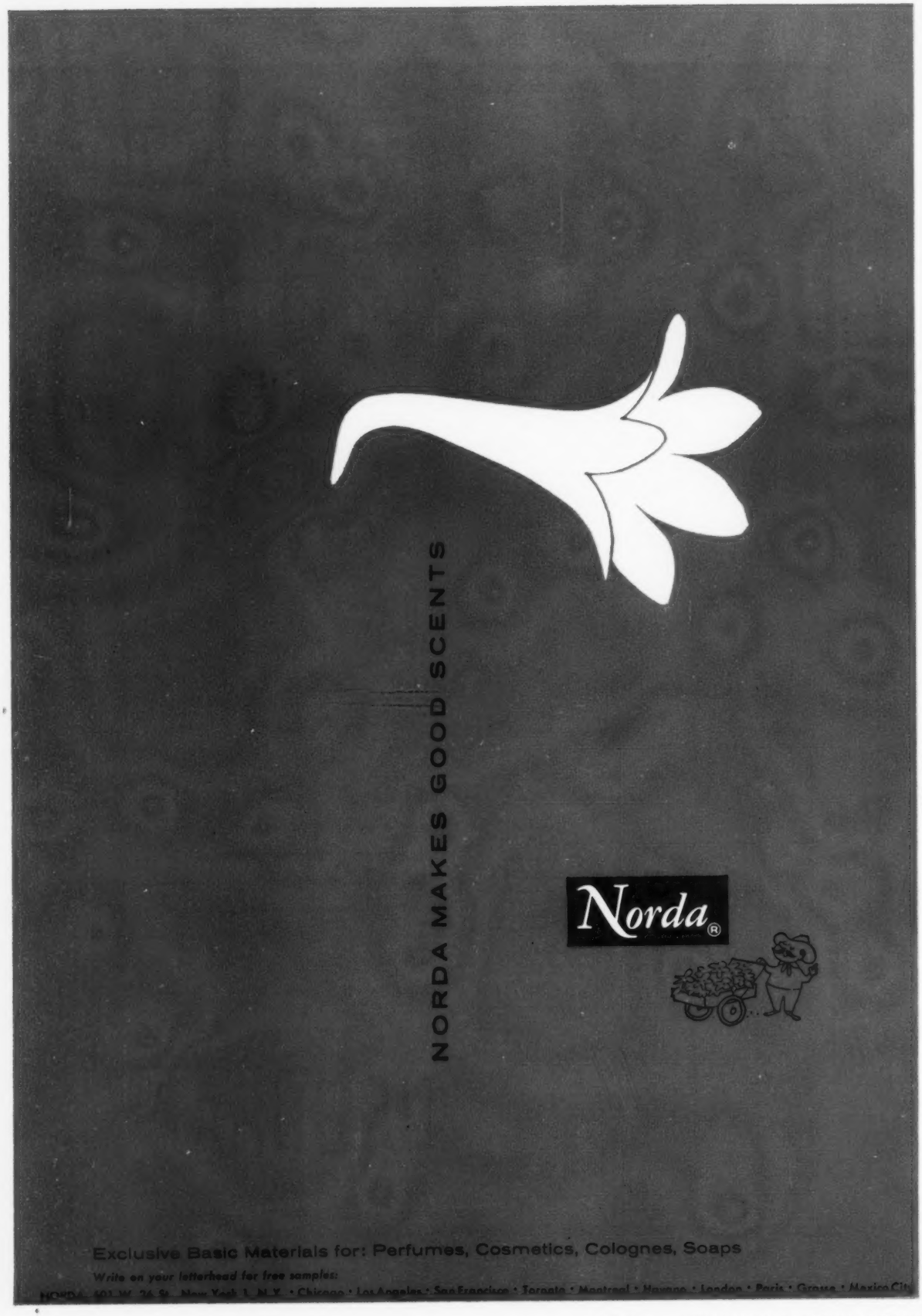
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Norda®
Exclusive Basic Materials for: Perfumes, Cosmetics, Colognes, Soaps
Write on your letterhead for free samples:

as the editor sees it...

WHY WAX?

In spite of a preponderance of evidence to the contrary, we still hear occasionally from those who boast that their floor coverings, mostly vinyl, need no waxing. Apparently, the authors of these statements are either not informed on the latest technical facts regarding waxing or they choose to ignore them. The same seems to be true as far as automobiles are concerned. Current Ford TV commercials boast that the new Ford car finish "takes care of itself," that in reality it needs no care, no waxing.

Watching them sandblast the granite front of a large office building, we are reminded that in fact an automobile finish is subjected to quite similar treatment. Millions of particles of sand and grit are constantly impinging on the finish. In some areas and under certain weather conditions, it closely resembles a sandblast. Now, we know these new finishes are harder, tougher, better, but we're quite certain they are not that good.

In the case of resilient flooring, we feel that the Floor Wax Division of the Chemical Specialties Manufacturers Association has completely proved its case in favor of waxing. The next step is to prove it just as conclusively in the case of auto finishes.

* * * * *

WRITE NOW!

Seldom do we urge folks to write their congressmen about this or that. We think it can be overdone. But this time, the situation takes on a different complexion and we urge every last manufacturer of chemical specialties of any kind to write a protest against the new proposed regulations issued by the Food & Drug Administration covering enforcement of the Hazardous Substances Labeling Act.

A study of the proposed regulations shows that in effect FDA has just about rewritten the law. Now, we ask, does Congress or FDA write our laws? The regulations show an utter disregard for industry and mostly without rhyme or reason. In matters of labeling, they "cry wolf" so often that they can actually engender the public habit of ignoring all precautionary label statements. Required type sizes and wording on labels approach the ridiculous.

Specifically, we suggest that every manufacturer write directly to the Hon. Abraham Ribicoff, Secretary of Health, Education, and Welfare, Washington, D. C. and send a copy to his Congressman with a brief explanatory letter. The Food & Drug Administration is a division of the Department of Health, Education, and Welfare. As we said, the new proposed regulations issued by FDA are obviously arbitrary and unnecessary and will encourage a public disregard for all precautionary labeling on household chemical products.

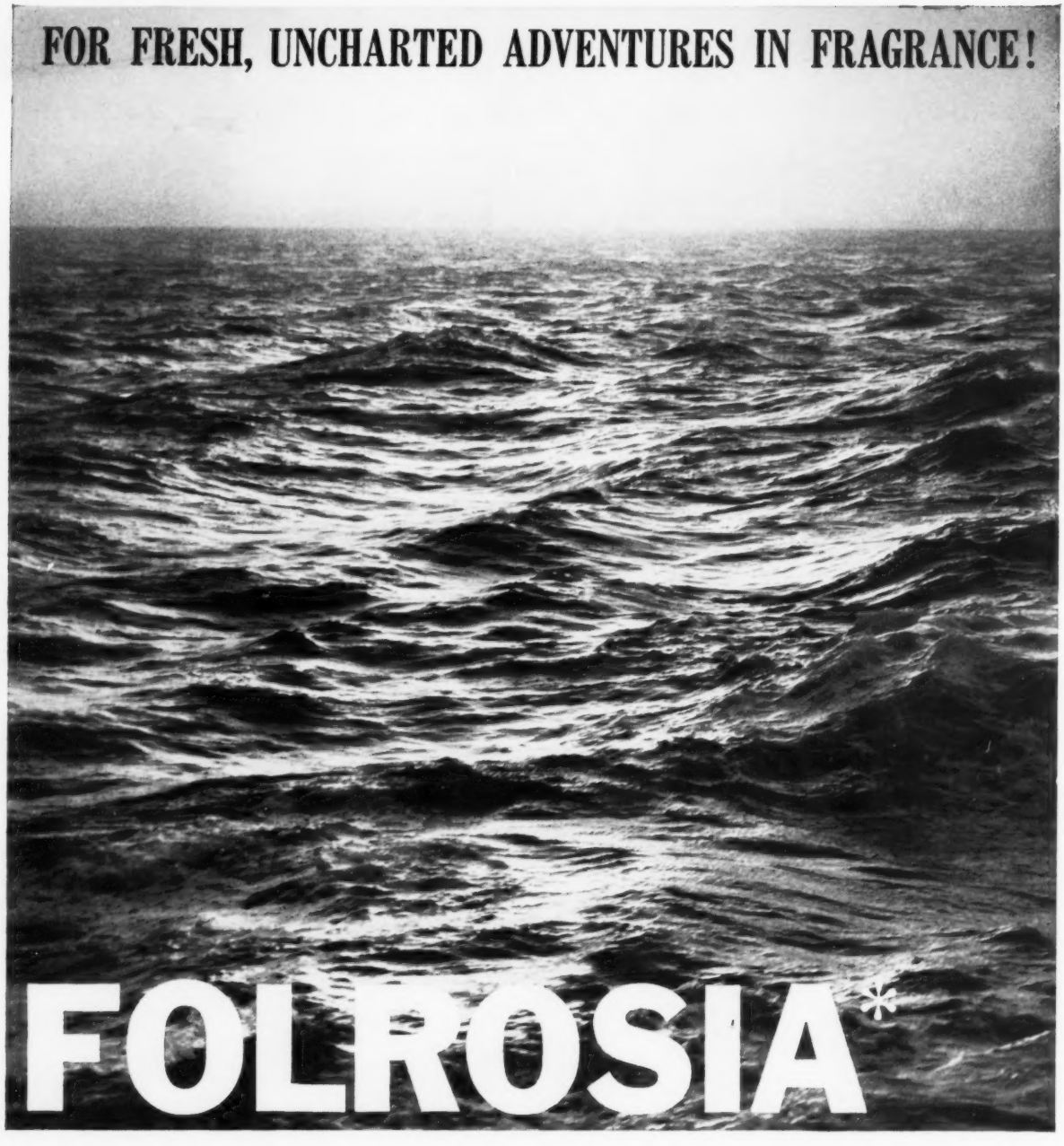
* * * * *

ANTIFREEZE

The season is here when manufacturers of antifreeze are looking to the chilly days of next winter as far as marketing plans are concerned. And we note with keen and unusual interest that one or two of the leaders have cut their prices for next season. We assume from this that the 1960-61 season was something less than a world-beater. We feel that it spells out sharper competition for next season as others are bound to follow suit.

During the 1960-61 season we had occasion to question service station people, many of them, in the east and mid-west. We can say with certainty that they do not like so-called "permanent" antifreeze solutions. The reasons are quite obvious. They make their money selling new antifreeze each season. Their interest in "permanent" products of any type is consequently always at low ebb. In fact, obvious attempts to belittle such products are common practice. That manufacturers of "permanent" products will continue to receive service station opposition, we believe goes without saying. We don't believe that pricing down such products will help too much. We feel that claims of "per-

FOR FRESH, UNCHARTED ADVENTURES IN FRAGRANCE!



...a new, "broad-spectrum" synthetic aromatic with a *deep red rose* character. Use it to create a crisp, natural, leafy rose aura . . . or to lend intensity and personality to subtler blends.

FOLROSIA blossoms with new levels of floral realism! Whether you wish to enhance familiar rose materials, create bold new rose accents of uncommon floralcy and naturalness, or add fresh, lifelike notes to more subtle compositions, FOLROSIA provides a simple, yet unusual answer.

FOLROSIA possesses remarkable tenacity, with a fragrance and nuances reminiscent of fresh green rose foliage. It is extraordinarily stable in soaps, detergents, cosmetic preparations, and its odor effectiveness remains at a high level over extended periods. Write for samples and technical data.

GIVAUDAN

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street
New York 36, N.Y.

*Reg. U.S. Pat. Off.

manent" protection will have to be soft-pedaled. That is if the service station is going to be counted on as a large volume outlet.

* * * * *

APPROVED

"A new list of approved cleaners and polishes has been published and is now available, . . . it was announced by the Rubber and Vinyl Flooring Council of the Rubber Manufacturers Association. . . . This booklet sets forth cleaners and polishes which may be safely used on vinyl and rubber floors. The products listed have been analyzed by an independent testing laboratory, which determined that they will not harm the flooring nor the adhesives which bind the flooring." This was the gist of a recent announcement by RMA.

As we have said before, we have no quarrel with the flooring manufacturers nor with the laboratory findings of the samples *actually tested*. All we want is assurance that every shipment of every product to the customers is the same as the sample tested. Who can give any such assurance? Who can stop the gyp from having a suitable sample tested and then from shipping a different and possibly inferior or damaging product? Can anybody in business today be so naive as to believe that just this has not been done?

Because no association can stand behind its so-called approved lists, because they do not in reality protect the customer against the gyp, we feel that all approved lists are surely "for the birds."

* * * * *

MORE ON CERTIFICATION

A further step to set up so-called approved lists of maintenance products has recently been taken. There has been formed "a diverse group of large consumers of cleaning and maintenance materials, paints and other products" to develop and sponsor a "certified products program." This group includes the American Hotel Association, a library association, a motel group, a hospital bureau, a housekeepers association, a college buying group and others. It is known as the Institutional Research Council and uses the address of the AHA in New York.

The avowed purpose of the group is to "coordinate research" and sponsor a program for certified products, in short to set up approved lists on a wider scale than heretofore. Manufacturers of cleaning and maintenance materials are being "encouraged" to submit their products for listing in the 1962 Certified Products List to be released next February.

To us this is the same old bogey on a larger, broader scale. To us, when stripped of its high-sounding verbiage, it is the same old blackjack. And as we have said a dozen times before, these certified products lists are in reality no protection to the consumer. He can still be hoodwinked by the sharp operator and there is no way to prevent such an operator from getting his products on the approved list. And then actually shipping an inferior product.

No doubt exists that the sponsors of these approved product schemes must be aware of their basic shortcomings, of their true inability to protect the user. Then why do they promote them? Accordingly, we once again urge manufacturers to ignore them. And we applaud those manufacturers who refuse to be played for suckers and have the guts to fight back.

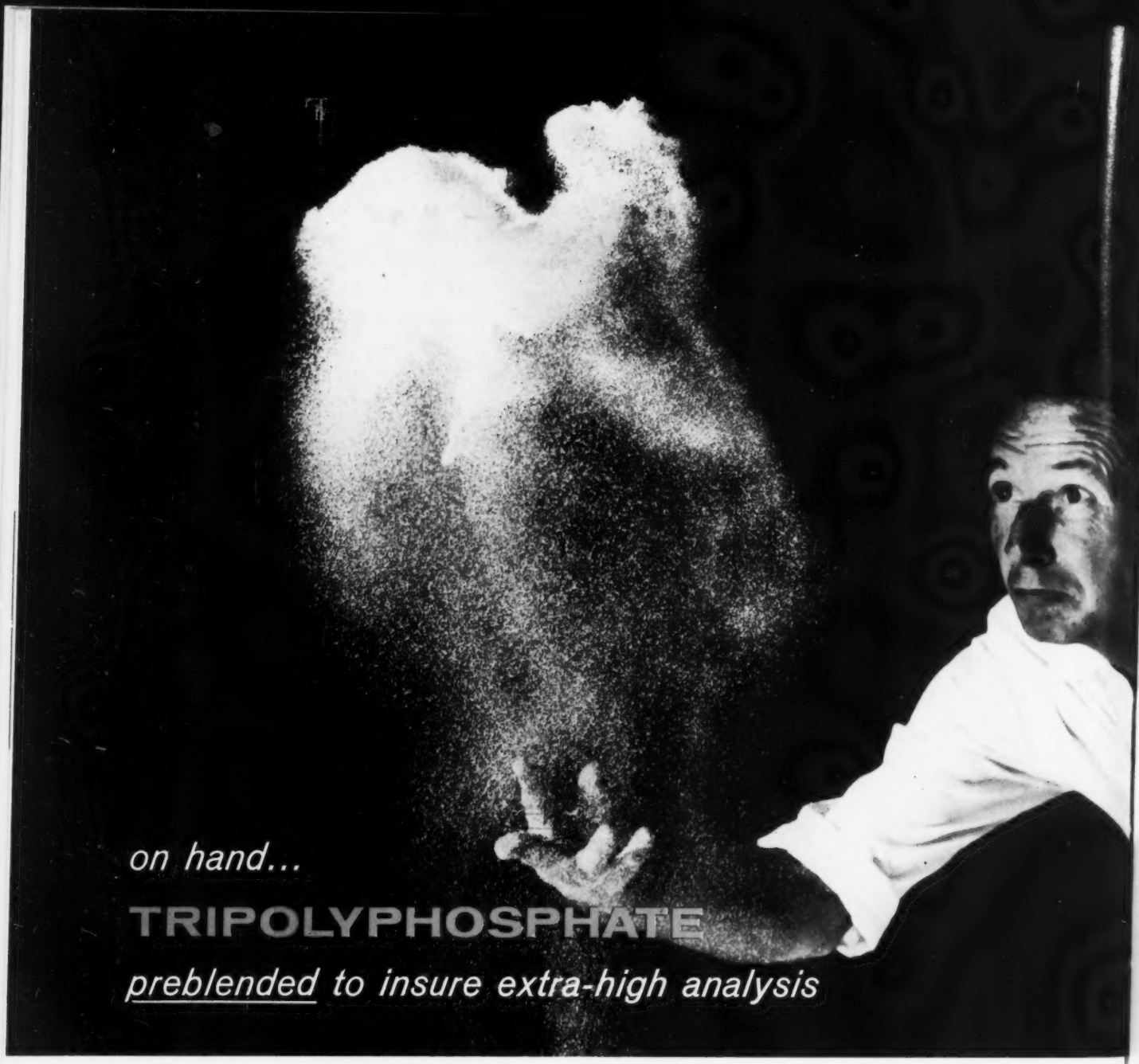
* * * * *

SALES TRENDS

In addition to combined soaps and detergent sales, which hit an all-time high in the first quarter of 1961, other chemical specialties in the past year or so have not been faring too badly either. Figures for the first quarter of this year show that continued sales gains by detergents, notably of the liquid variety, have pushed the total for both detergents and soaps to new highs.

Aerosol sales for 1960, just released at the CSMA midyear meeting, were approximately 670 million for non-food aerosols produced in the U. S. and Canada. This represents a gain of 17 per cent from 1959. An encouraging aspect of these figures is the trend to larger size containers. This means, of course, that an even higher percent of product is being sold.

Automotive specialties did rather well, too, in spite of the slump in the automotive industry last year, particularly in the second half. Antifreeze sales were up, while minor declines were registered by auto cooling system chemicals, hydraulic brake fluids, and auto waxes and polishes.



A new process is used to make AA Quality Sodium Tripolyphosphate. It includes a special operation that preblends the reactants before calcining. You benefit from the extra detergent strength that is developed and carried through to the finished product.

You also benefit from a free-flowing uniformity. It comes from the careful control built into thoroughly modern spray drying and calcining units. Send for production samples of this new "Tripoly" now!

Top detergent quality in every granule...

AA QUALITY SODIUM TRIPOLYPHOSPHATE

AA QUALITY SODIUM TRIPOLYPHOSPHATE
AA QUALITY TETRASODIUM PYROPHOSPHATE
AA QUALITY TRISODIUM PHOSPHATE
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Chemical Division
The American Agricultural Chemical Company
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THE AMERICAN AGRICULTURAL CHEMICAL COMPANY
AA QUALITY

as the reader sees it...

"...Between Two Conflicts"

Editor:

I am torn between two conflicts. One is to see our company continue to receive adequate editorial coverage in your publication; but, on the other hand I would like to see us properly identified.

The very common error from time to time has been to identify our company as Crown Can Company. Actually, the Can Company ceased to exist by this corporate name some five years ago. We would appreciate your taking whatever steps are necessary to inform your editorial department that we much prefer to be recognized by the corporate title of either Crown or Crown Cork & Seal Company.

Joseph T. Hanlon,
Advertising and Sales
Promotion Manager
Crown Cork & Seal Co.,
Philadelphia

To Mr. Hanlon and others at Crown our deepest apologies for referring to Crown Can Company in at least two places in the May issue of SOAP & CHEMICAL SPECIALTIES. *We have assured Mr. Hanlon that from now on, and forever more, it will be Crown Cork & Seal Co. Ed.*

★

Tear Sheets Wanted

Editor:

We read in your March, 1961 issue, a request from Jordan for reprints of the article "Production of Washing Powders without Spray Drying," by A. Davidsohn. The article appears in the May and June, 1960, issues of *Soap & Chemical Specialties.*

We notice that you were able to send to the enquirer a set of tear sheets.

As we have a particular interest in production of soap powders without spray drying we would very much appreciate a similar set of tear sheets if these are available. Failing this you may be able to advise us where we can obtain copies of the issues of the magazines for these months.

W. S. Robertson,
General Manager,
Taniwha Products, Ltd.,
Westfield, Auckland,
New Zealand

A set of tear sheets has been sent to Mr. Robertson, and if any of our other readers desire them we will be glad to furnish them with tear sheets of the article as long as our supply lasts. Ed.

★

After the Meeting

Editor:

It is with interest that I look forward to reading many of the articles in *Soap and Chemical Specialties.* Because I have an interest in this field, I also look forward to seeing the agenda for the CSMA meeting which appears in your publication. However, there is a problem, which may be a local one, that is very disconcerting. That is that I always read the agenda *after* the meeting is over. For example, the May issue of *Soap and Chemical Specialties,* in which was published the agenda for the CSMA meeting commencing May 15, arrived in our library May 29. I wonder if this is the normal sequence of events, and if so, I would appreciate it if you could inform me how I can obtain advance notice about the meeting agenda.

R. W. Roth, Group Leader
Exploratory Product Research Section
Stamford Research Laboratories
American Cyanamid Co.
1937 West Main St.
Stamford, Conn.

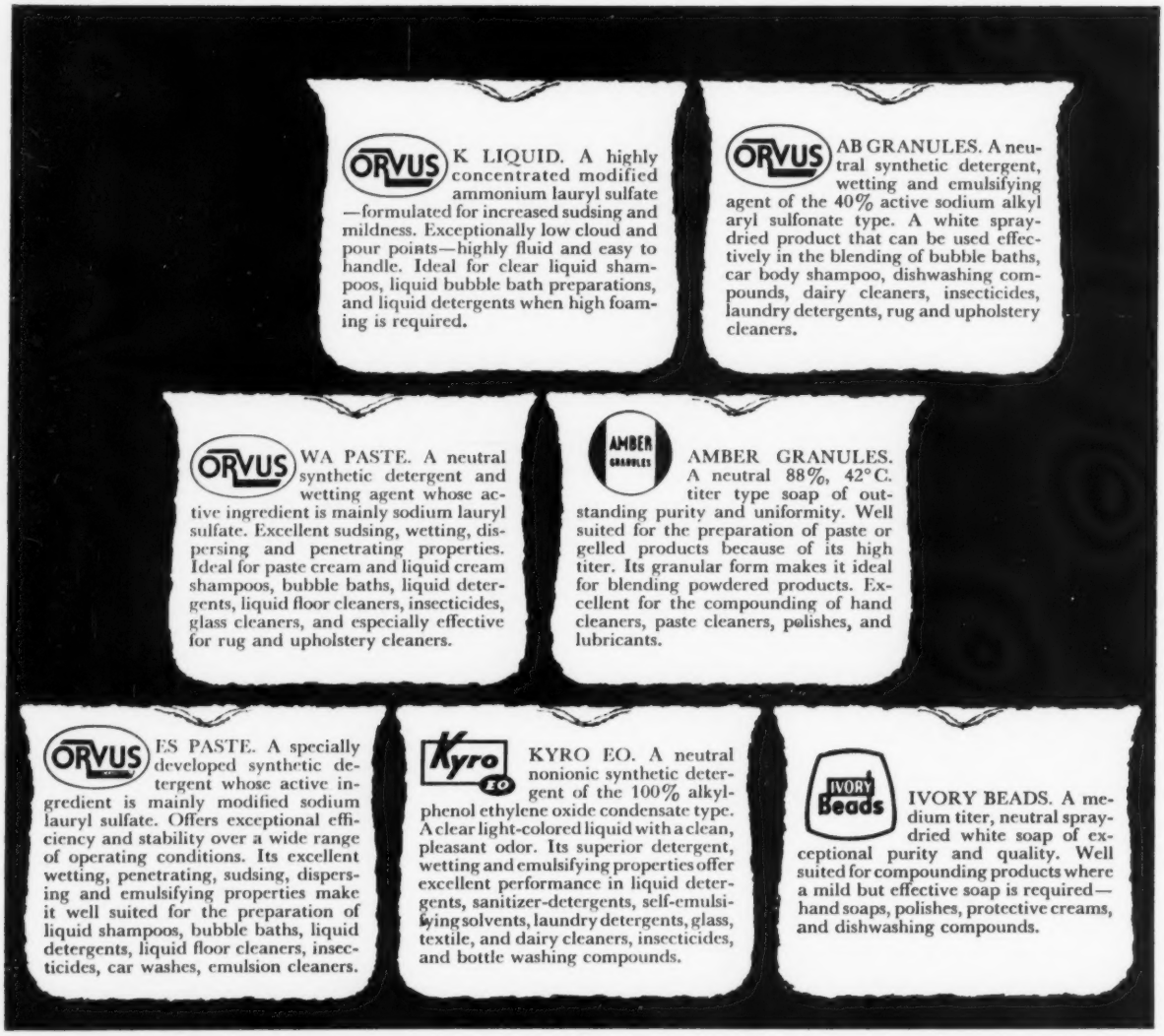
Because usually we publish some of the papers presented at morning sessions on the first day of each CSMA meeting, copies of SOAP & CHEMICAL SPECIALTIES *are distributed at the group luncheon that day. We can't distribute copies of the convention issues earlier since we have agreed not to publish these papers prior to their actual presentation.*

(*Turn to Page* 199)

ANY RESEMBLANCE between recipient of oil painting, George W. Fiero (right), and the painting itself is purely intentional. Dr. Fiero, who served last year as president of the Chemical Specialties Manufacturers Association, receives himself in oils from Michael Lemmermeyer, official portraitist of CSMA, at luncheon, May 16, during 47th midyear meeting of CSMA in Chicago. Dr. Fiero is with Esso Standard Division of Humble Oil & Refining Co., New York, while artist Lemmermeyer is president of Aromatic Products, Inc., New York perfuming materials firm.

How to make sure of Successful Formulation

1. Use Procter & Gamble products
2. Use Procter & Gamble formulation assistance


ORVUS K LIQUID. A highly concentrated modified ammonium lauryl sulfate —formulated for increased sudsing and mildness. Exceptionally low cloud and pour points—highly fluid and easy to handle. Ideal for clear liquid shampoos, liquid bubble bath preparations, and liquid detergents when high foaming is required.
ORVUS AB GRANULES. A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulfonate type. A white spray-dried product that can be used effectively in the blending of bubble baths, car body shampoo, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.
ORVUS WA PASTE. A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium lauryl sulfate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste cream and liquid cream shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, glass cleaners, and especially effective for rug and upholstery cleaners.
AMBER GRANULES
AMBER GRANULES. A neutral 88%, 42°C. titer type soap of outstanding purity and uniformity. Well suited for the preparation of paste or gelled products because of its high titer. Its granular form makes it ideal for blending powdered products. Excellent for the compounding of hand cleaners, paste cleaners, polishes, and lubricants.
ORVUS ES PASTE. A specially developed synthetic detergent whose active ingredient is mainly modified sodium lauryl sulfate. Offers exceptional efficiency and stability over a wide range of operating conditions. Its excellent wetting, penetrating, sudsing, dispersing and emulsifying properties make it well suited for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.
Kyro EO
KYRO EO. A neutral nonionic synthetic detergent of the 100% alkylphenol ethylene oxide condensate type. A clear light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer-detergents, self-emulsifying solvents, laundry detergents, glass, textile, and dairy cleaners, insecticides, and bottle washing compounds.
IVORY Beads
IVORY BEADS. A medium titer, neutral spray-dried white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, and dishwashing compounds.

Procter & Gamble products offer you a proven way to simplify your formulation problems and be confident of successful results. We invite your inquiry for further information and the opportunity to forward an Industrial Catalogue. Write to:

PROCTER & GAMBLE, Manager, Bulk Soap Sales Department, P. O. Box 599, Cincinnati 1, Ohio

Detergents . . . Cleansers . . . Soaps . . .

Aerosols
Detergents
Dishwashing compounds
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Medicinal soaps
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Potash soaps
Scouring cleansers
Shampoos
Shave products
Soap powders
Starch
Steam cleaners
Textile detergents
Toiletries
Toilet soaps and other detergent and soap products

Jay C. Harris of Monsanto Chemical Co. presided at the first detergents session held at spring meeting of the American Oil Chemists' Society recently. Mr. Harris coauthored paper entitled "Correlation Between Critical Micelle Concentration, Fatty Soil Removal, and Solubilization," presented at the session by M. E. Ginn of Monsanto. For story on AOCS detergents program see page 48.

AMERCHOL Lanolin Derivatives

add specific new functional properties to lanolin's most active components

AMERCHOL Derivatives and lanolin do have a common denominator, but the similarity ends there. AMERCHOL Derivatives add special properties and specific functional effects to lanolin's most active components. These unusual materials provide the formulating chemist with valuable new tools for producing superior cosmetic and aerosol products.

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AMERCHOL L-101 —powerful *free-sterol* depressant of interfacial tension. Excellent auxiliary emulsifier. Adds gloss, soft textures, and superb emollience to formulations and imparts valuable moisturizing effects to the skin.

solubilizer

SOLULANS —*ethoxylated derivatives.* Water soluble, yet emollient! Solubilizers of great general utility. Impart excellent plasticizing, lubricating, and conditioning qualities at low concentrations.

Complete technical data, samples and suggested formulas are available from our research laboratories.

penetrant

ACETULAN —*acetylated lanolin alcohols.* Non-oily hydrophobic liquid emollient. Penetrates and lubricates leaving a persistent soft after-feel that is truly remarkable.

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MODULAN —*acetylated lanolin.* Our own patented product. An unusual hypo-allergenic emollient. Non-tacky, oil soluble, and hydrophobic. Excellent for emulsions, soaps, baby oils, and brilliantines.

liquid lanolin

VISCOLAN —*dewaxed lanolin.* Supplies all the natural benefits of lanolin in intensified, convenient liquid form. Oil-soluble, low odor and color.

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POLYLAN —*essential polyunsaturate.* Liquid *wax ester.* Combines the natural benefits of linoleic acid with the softening, protective, and conditioning properties of lanolin's most active components.

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Liquid Detergent Builders-II

Compatibility and stability of solutions of soluble silicates and of mixed phosphates

By R. Getty and W. Stericker,
Philadelphia Quartz Co.
Philadelphia

THE stability areas of solutions containing sodium tripolyphosphate or tetrasodium or tetrapotassium pyrophosphate with various sodium and potassium silicates were reported last year (1). Victor Chemical Works Division of Stauffer Chemical Co. suggested that perhaps better results could be obtained with a mixture of equal parts by weight of sodium tripolyphosphate and glassy sodium hexametaphosphate. See analyses in Table I.

Method

A 25 per cent solution of the phosphates at room temperature was prepared from an intimate mixture of the two powders. The mixture dissolved readily except for a few small white particles, which were filtered out. The resulting solution had a pH of 7.2. The composition of the silicate solutions used is given in Table II. Mixtures were made by adding any water necessary to the silicate solution, followed by the desired amount of phosphate solution or the powdered phosphates. The mixtures which were prepared contained from two to 23 per cent phosphate solids and from two to 32 per cent silicate solids.

As in the earlier work, the resulting mixtures were stored in glass jars at room temperature (about 23° C.). Their appearance was noted frequently. Mixtures were judged to be non-compatible if either an appreciable amount of turbidity or flocculent precipitate developed or if crystals formed at any time during storage. If no separation occurred after 15 weeks, the samples were stored for one week in a refrigerator at about 4° C. If this caused no separation or, if whatever separated redissolved on warming to room temperature, the mixture was considered stable.

In addition to the work with the mixed phosphates, it was found possible to extend investigation of the systems previously reported. In these earlier systems the concentrations of the silicate and phosphate solutions had limited the maximum solids which could be achieved by this method. However, by adding powdered dry sodium tripolyphosphate to the silicate solutions, additional areas could be investigated. It was surprising to find that the phosphates were readily soluble in the silicate solutions.

Table I. Analyses of Phosphates

Phosphate	$Na_5P_3O_{10}$	Glassy Hexametaphosphate
% Titratable alkali as Na_2O		
to phenolphthalein	4.72	0.0
to methyl orange	11.96	3.27
% P_2O_5	57.97	66.95
% Ignited Loss	0.45	0.79

Table II. Analyses of Sodium Silicates

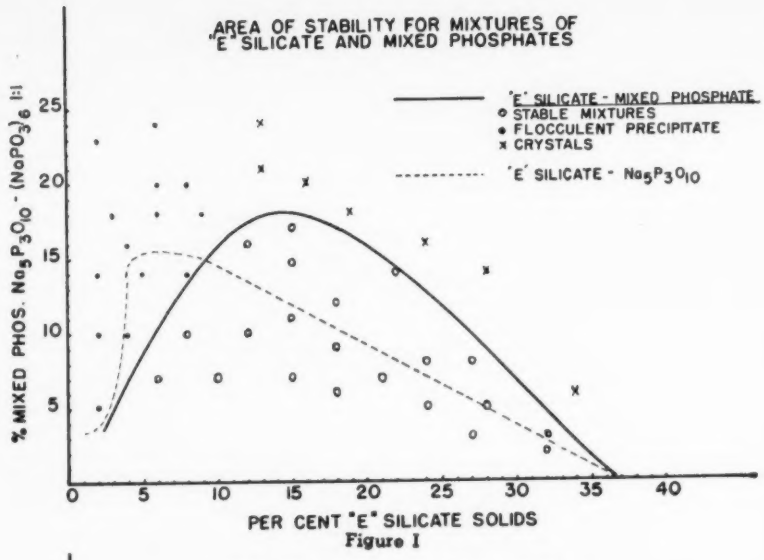
Silicate	% Na_2O	% SiO_2	% Total anhydrous solids	SiO_2/Na_2O Mol Ratio
"E" **	8.6	27.7	36.3	3.32
"Star" **	10.5	26.3	36.8	2.58
"Starso" **	13.4	24.1	37.5	1.86
"Metso"** Granular	29.5	28.7	58.2	1.00

Analyses of Potassium Silicates

Silicate	% K_2O	% SiO_2	% Total anhydrous solids	Mol Ratio SiO_2/K_2O
"Kasil ** 88"	9.05	19.9	29.0	3.45
Potassium silicate "A" *	12.71	24.8	37.5	3.05
Potassium silicate "B" *	14.25	24.1	38.4	2.65

*Not available commercially.
**Registered trademarks, Philadelphia Quartz Company.

(1) R. Getty & W. Stericker: *Soap & Chemical Specialties, 36,* #4, 45-8 (April 1960).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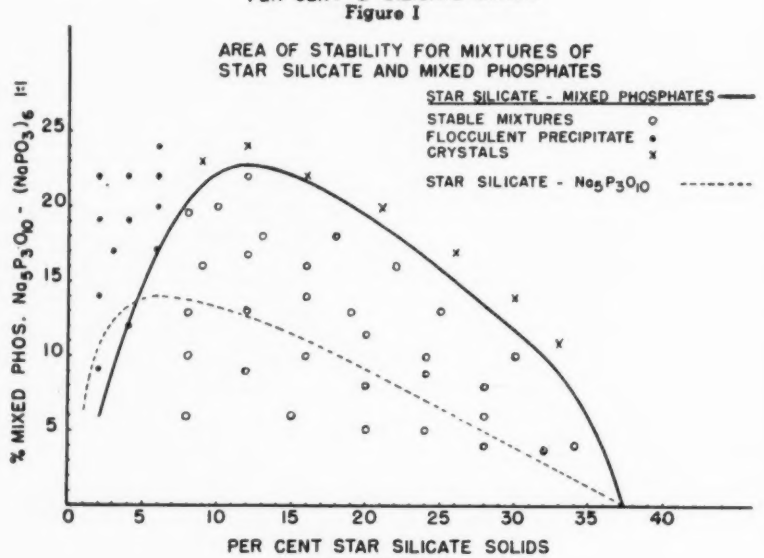
"E" SILICATE AND MIXED PHOSPHATES
'E' SILICATE - MIXED PHOSPHATE
STABLE MIXTURES
FLOCCULENT PRECIPITATE
CRYSTALS
'E' SILICATE - $Na_5P_3O_{10}$
% MIXED PHOS. $Na_5P_3O_{10}$ - $(NaPO_3)_6$ 1:1
PER CENT "E" SILICATE SOLIDS

Figure I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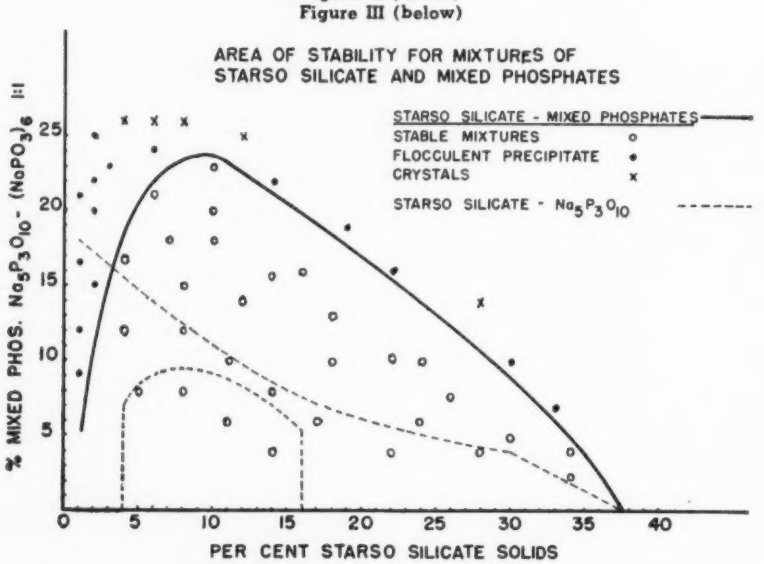
STAR SILICATE - MIXED PHOSPHATES
STABLE MIXTURES
FLOCCULENT PRECIPITATE
CRYSTALS
STAR SILICATE - $Na_5P_3O_{10}$
% MIXED PHOS. $Na_5P_3O_{10}$ - $(NaPO_3)_6$ 1:1
PER CENT STAR SILICATE SOLIDS

Figure II (above)
Figure III (below)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STARSO SILICATE - $Na_5P_3O_{10}$
% MIXED PHOS. $Na_5P_3O_{10}$ - $(NaPO_3)_6$ 1:1
PER CENT STARSO SILICATE SOLIDS

in some cases to concentrations as high as or higher than in water alone.

In order to investigate the effect of higher total "Kasil 88" solids, this commercial product was concentrated to 11.89 per cent K_2O and 26.1 per cent SiO_2 (38.0 per cent total solids) before combining with sodium tripolyphosphate or with mixed phosphates.

Results

As in the earlier work, there is a tendency to form flocculent or gelatinous precipitates in the high phosphate — low silicate areas. With higher silicate contents a greater phosphate concentration can be used, but eventually there is danger of crystallization of sodium tripolyphosphate or of flocculation in the high silicate range.

With "E" silicate and the mixed phosphates the area of compatibility is much greater than with "E" and tripolyphosphate alone. It appears that the maximum phosphate concentration can be attained with about 14 per cent of silicate solids and 17 per cent of the mixed phosphates. Solutions containing 36 to 37 per cent solids can be obtained by using more silicate. One such mixture contained 23 per cent silicate and 14 per cent phosphate. With the tripolyphosphate alone a maximum of only 15 per cent phosphafe was possible. In that case the silicate was at five to eight per cent. The maximum total solids in this system can be obtained with high silicate and low phosphate but is less than with the mixed phosphates. The results in both cases are shown in Figure I, where the solid line represents the limits of compatibility with the mixed phosphates and the dashed line with the tripolyphosphate.

With "Star" silicate the solubility of the mixed phosphates was much greater than the solubility of the tripolyphosphate alone. The maximum phosphate content was about 22 per cent with 12 per cent of silicate solids. Again, a maximum total solids of about 40 per cent could be obtained at higher

silicate concentrations; for example, 14 per cent phosphate and 26 per cent silicate. These results are shown in Figure II.

"Starso" silicate was not very compatible with sodium tripolyphosphate alone. The admixture of the hexametaphosphate eliminated an area of incompatibility extending from 4 to 16% silicate solids and from zero to 10% tripolyphosphate. As Figure III shows it also extended the compatibility area at higher concentrations and inhibited crystallization of the material which did separate. The maximum phosphate concentration of 23% was obtained with 10% silicate; higher total solids were possible with more silicate.

"Metso Granular," was compatible with mixed phosphates but not with sodium tripolyphosphate alone. The region of stable solutions extended to lower concentrations with "Metso" than with the less alkaline "E," "Star," or "Starso." Conversely, stability at higher concentration of silicate and phosphate were achieved with these relatively siliceous silicates. This is shown in Table III.

Potassium Silicates

By adding solid phosphate and by using more concentrated potassium silicate solutions, a better idea of the areas of compatibility has been obtained than was reported previously (1). In addition, tests with the mixed phosphates have been made.

"Kasil 88" solids and sodium tripolyphosphate can be used at high concentrations before reaching an area where the solutions become unstable. The extent to which the limits have been studied is shown in Figure IV. All the points above the lower (original) tie line are new. Those which fall below the top tie line were made from solutions while those above it were made by adding solid phosphate. Comparison with the area under the lower tie line shows that the range of compatibility has been extended considerably. By

(*Turn to Page* 114)

Table III. Compatible Mixtures with Sodium Silicates

% Mixed Phosphates*	Concentration Range (% silicate solids) "E"	"Star"	"Starso"	"Metso Granular"
2	2-34	2-36	2-36	2-14
5	3-31	2-34	2-33	2-17
10	7-27	4-30	4-28	2-16
13	9-23	4-27	4-24	3-14
15	10-20	4-24	4-21	4-13
17	12-17	8-21	4-19	5-11
20	NC	8-16	5-15	6-8
22	NC	9-13	6-11	NC
% $Na_5P_3O_{10}$				
2	2-32	2-32	1-3, 18-34	NC
5	5-26	2-27	1-2, 16-25	NC
10	5-20	2-17	1-2, 10-14	NC
13	5-12	4-9	1-9	NC
15	5-8	NC	1-4	NC
17	NC	NC	NC	NC

NC = Non-compatible.
* = 50% by weight each of sodium tripolyphosphate and sodium hexametaphosphate.

Figure IV

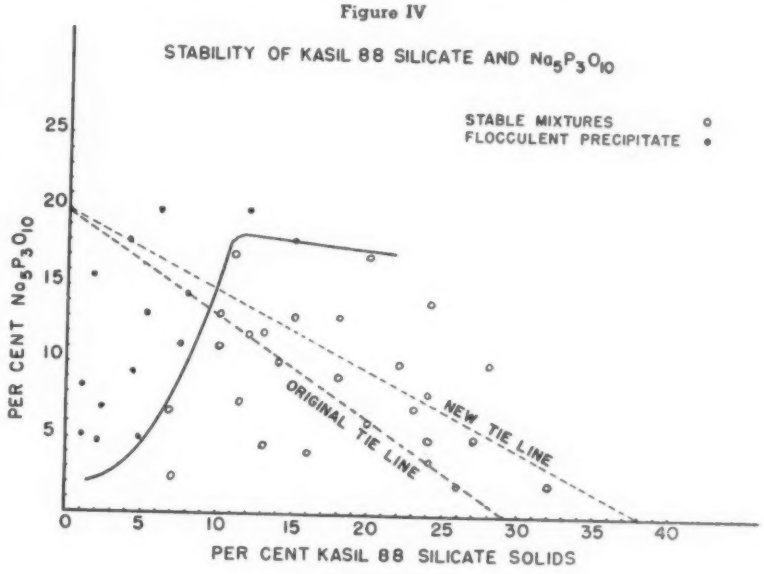
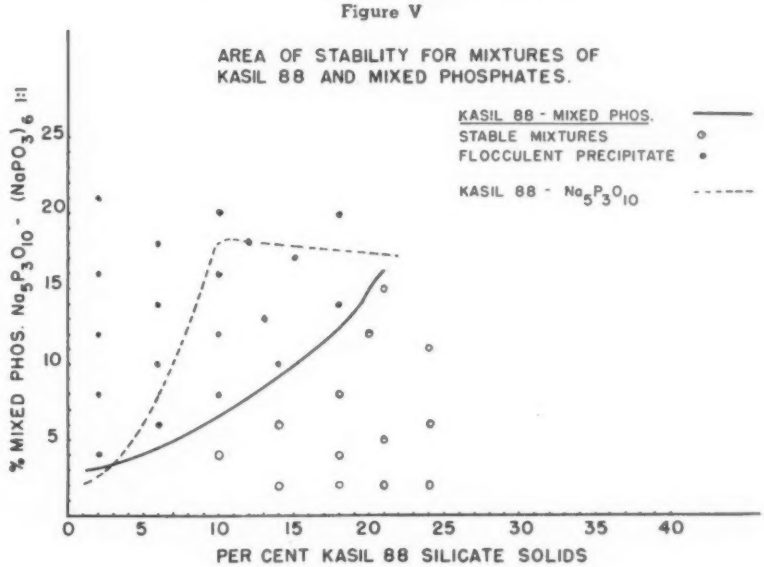


Figure V



Chairman and speakers at detergent session held during American Oil Chemists' Society spring meeting in St. Louis. Left to right: J. W. McCutcheon, consultant, New York; M. E. Ginn, Monsanto Chemical Co., Dayton; E. C. Beck, Armour & Co., Chicago; J. C. Harris of Monsanto, chairman; E. Jungermann, Armour; A. J. Stirton and A. M. Wrigley, both of Eastern Regional Research Laboratory, U. S. Department of Agriculture, Philadelphia.

AOCS Detergents Session

By John W. McCutcheon,

A DETERGENT session was included this year for the first time in the spring meeting of the American Oil Chemists' Society, held April 30 through May 3 in St. Louis, Mo. J. C. Harris of Monsanto Chemical Co., Dayton, O., presided over the detergent session which consisted of seven papers. Some minor variations in the nature of an alkyl benzene sulfonate, not detectable by standard analytical techniques, can greatly affect its detergency. A technique capable of checking these differences was presented in a paper by W. M. Linfield, E. Jungermann, G. A. Davis and E. C. Beck of Armour & Co., Chicago. Entitled "Statistical Approach to Detergency Evaluation" the paper was read by Dr. Jungermann.

The Tergotometer test method of detergency evaluation was used. Replicate soil removal values were obtained from four alkyl aryl sulfonate built spray dried detergent powders at concentrations of 0.3, 0.4, and 0.5 per cent and water hardness of 50 ppm and 300 ppm. Standard deviation of a single detergency determination was found to be 0.54 per cent soil removal units; precision at a 95 per cent confidence limit is 1.08 per cent units.

After thus determining the limitations of the method, it was tried out on a practical example. The detergency of four different samples of a detergent powder was determined. Chemical analysis by standard methods indicated that they all had the same composition. When the detergency was determined, on the other hand, it was found that two of the samples were significantly better detergents than the other two. It was decided to have a really close look at one of the raw materials in the formula, namely, the dodecylbenzene sulfonate.

Titration and free oil determination had shown no significant difference. The samples were then desulfonated with concentrated

phosphoric acid, and the desulfonated oils were gas chromatographed. Curves obtained under these conditions are not only typical of the source and type of alkylaryl sulfonate used, but by careful comparison of the relative height of each peak relative to a known reference curve, minor raw material variations can be detected. The authors found that small variations in the relative height of the first two, that is, the highest molecular weight, correlate closely with variations in detergency of the materials.

"A Method for Evaluation of Detergent Efficiency in the Spray Cleaning of Hard Surfaces" was presented by John W. McCutcheon of John W. McCutcheon, Inc., New York. Ethylene oxide alkyl phenols were found the most suitable detergents for use as adjuncts in the spray cleaning of oily metal surfaces. A dozen detergents of different types were tested by a novel piece of equipment, designed by the author. The apparatus projects a 3° stream of water at 175 psi and a rate of 2 gpm against a metal test plate, 12 inches square, at a distance of four feet. The test soil on the plate contains an optical dye. For evaluation the plate was examined under ultraviolet light.

Sensitivity of the test was sufficient to tell the difference in cleaning power between city water and sea water and between 0.05 per cent and 0.075 per cent additions of detergent.

A spray containing 0.1 per cent of a polyethylene ether of an alkyl phenol was found to clean a test plate more efficiently in one wash than was possible by ten washes with water alone, Mr. McCutcheon reported.

A paper on the "Correlation Between Critical Micelle Concentration, Fatty Soil Removal, and Solubilization" by M. E. Ginn and J. C. Harris of Monsanto Chemical Co. was read by Dr. Ginn.

Using two model soil-detergent systems (hard substrate/triglyceride; cotton/fat, mineral oil, graphite) it was shown that soil removal begins at, or near, critical micelle concentration (cmc). These findings confirm the work of other investigators with different systems, according to the authors. Maximum detergency occurs at concentrations considerably in excess of cmc, varying some 6 to 10 times cmc for different surfactants. An equation for soil removal showed excellent fit of experimental values for both detergency systems, Dr. Ginn reported.

Direct correlation between cmc, solubilization (of several materials), and soil removal was demonstrated. Marked differences between surfactant type and solubilization of triglycerides were found.

The nonionic surfactants were excellent solubilizers for triolein correlating with their effective soil removal. Neither sodium oleate nor sodium tripolyphosphate effectively solubilized the triglyceride but both are effective soil removers. These observations suggest that the soil removal mechanism of sodium oleate and tripolyphosphate differs from that of the nonionics, possibly as an emulsification or displacement mechanism. Solubilization of triglyceride occurs most effectively considerably in excess of cmc.

More than 40 per cent of all toilet bars sold in the United States contain bacteriostatic additives, according to an estimate reported by E. Jungermann and E. C. Beck in a paper entitled "Determination of Germicide Mixtures in Soaps and Detergents." Presented by Dr. Jungermann, the paper described a method for the qualitative and quantitative determination of soap germicides including the bisphenols, such as hexachlorophene and biothionol, various halogenated salicylanilides, trichlorocarbanilide, and tetramethylthiuram disulfide.

Elimination of interfering substances such as perfumes and dyes is accomplished by extraction with dimethylformamide, followed by evaporation to dryness and solution in ethanol. The dimethylformamide readily extracts all of the germicides from a bar of soap along with the color and perfume, but none of the soap itself. Evaporation over a steam bath removes most of the perfume and destroys the dye. The residue is then taken up in ethanol to allow readings in the ultraviolet region down to 220 millimicrons. Readings are taken both in acidic and basic alcohol. The patterns obtained under these conditions are typical of the various germicides and are used to identify them. The quantity of germicide present is determined from standard extinction curves.

"Identification of Soap Stocks by Gas Chromatographic Techniques," by E. C. Beck, E. Jungermann and W. M. Linfield was the third contribution to the detergents session by members of the staff of Armour and Co. It was presented by Dr. Beck.

The stock of a given soap may be determined if the ratios of the fatty acids present are known. This is accomplished in most laboratories by performing a number of average physical measurements such as titer, saponification value, and iodine number. An alternate approach, based on gas chromatographic techniques and utilizing a novel automatic attenuator is presented in this paper.

The use of an attenuator keeps all peaks, whether large or small, on the same chart. This attenuator is based on the decimal system which greatly facilitates estimation of peak areas and also is

(*Turn to Page* 91)

Nonionics from a new source, application of modern instrumentation to analysis of soaps and detergents, measurement of soap germicides were discussed at AOCS meeting

Forces in Detergency

By Jay C. Harris,
Monsanto Chemical Co.
Dayton, O.

Part II.

THE two main attractive forces are chemisorption and van der Waals physical forces: A broad criterion of their magnitudes suggests that chemisorptive energy amounts to 10,000 to 100,000 cal/mole, while the physical forces may approach 10,000 cal/mole. These forces may be further subdivided into coulomb or ionic, "image" forces in metals, induction, electrostatic polarization, covalent bonding, nonpolar, dipolar, and hydrogen bonding. The short range Born and the double layer forces are those of repulsion.

The effect of these forces on soil retention, removal, and redeposition have been investigated in a rather preliminary manner. An energy barrier to removal and redeposition may be found in many systems, and to surmount it, for either removal or redeposition, a mechanical energy input may be necessary. This concept helps to explain why greater mechanical energy input may be required for removal of some soils, why excessive washing periods may result in redeposition, and why soils of particle size smaller than 10^{-5} cm are more difficult to remove.

Calculations of energy components have been based upon parallel plate, sphere and plate, and sphere to sphere types of surfaces. Though many soils are spherical in type, a recent investigation has shown that many garment soils are clay platelets. Improvements in detergency by increasing the interfacial energy barrier may improve soil removal and decrease redeposition.

Heat of Wetting

Heat of wetting is here defined as the heat liberated when an adsorbent is exposed to a pure vapor or liquid: Wetting and immersion are considered as synonymous. ΔH is positive if heat is absorbed and negative if heat is given off; ΔH is usually negative.

Heat (of wetting) evolution occurs when a liquid is contacted with a solid (the greater the affinity, the greater the heat of wetting) and is related to the free energy change on wetting:

$$-\Delta H_{SL} = S\left(F_L - T\frac{dF_L}{dT}\right)$$

where SL is the solid/liquid system, S is the square cms of clean surface per gram, F_L is $\gamma_{SO} - \gamma_{SL}$ where these are the surface tensions of the solid in vacuum and solid/liquid respectively, and T is temperature (1).

The heats of wetting for a variety of powdered surfaces by water are shown in Table I. When the surface areas of the powders are known, the heats as ergs/cm² may be determined, while in other instances, though the areas are unknown, valuable information may be developed in terms of calories per gram of powder. Outgassing of powders before immersion in the liquid is important for rigid comparisons, as are temperature and adequate calorimetry control. Hydrophilicity or polarity of a surface may be rated by compari-

Table I. Heats of Wetting
By Water on the Solids Indicated

Powdered solid	Heat of wetting cal/gm Powder	Heat of wetting ergs/cm²	Temp. °C	Ref.
Rutile		550 ± 18	25	47
"Graphon"		32.2 ± 0.1	25	47
"		51 ± 6	25	99
"		32		16
"Teflon"		6		16
Graphite A		47.5	25	7
Graphite B		56	25	7
Graphite	1.79	—	25	12
Charcoal		12.4		4
Synthetic copper powder		725	25	7
Commercial copper powder		235	25	7
"Linde" silica gel		261	25	7
Silica		564 ± 16	25	99
Commercial silica gel		263	25	7
Amorphous silica (siloxane)		259 ± 3		14
" " (silanol)		129 ± 8		14
TiO_2	1.24		25	12
ZrO_2	0.754		25	12
SiO_2	0.334		25	12
SnO_2	0.345		25	12
ZnS	0.131		25	12
$BaSO_4$	0.517		25	12
$ZrSiO_4$	0.562		25	12
SiO_2, Al_2O_3, Fe_2O_3		280		78
Quartz, SiO_2		260		74
Potato starch	28.06		20	23
Gelatin	32.50		20	23
Agar	44.85		20	23
Magnesium oxide		1090		14
NaCl		305		14
Calcium oxide		1310 ± 200		14

Table II. Molar Energy of Desorption of Molecular Layers of Water from a Titanium Dioxide (Anatase) Surface (42)

1 No. of layers	2 Internal energy of desorption cal/mole	3 Internal energy of vaporization	4 Column 2 less column 3	5 Theory of exponential decay
1	16450	9900	6550	6550
2	11280	"	1380	1637
3	10350	"	450	409
4	9980	"	80	102
5	9940	"	40 (?)	26

sons of heats of immersion in water. If outgassing removed chemisorbed water on silica, converting —OH groups to silane groups – –Si–O–Si–, changes in heat values would ensue and the character of the surface could then be assessed (97). An excellent discussion of methodology, application and the implications of heats of immersion are given by Chessick and Zettlemoyer (17).

Data listed in Table I suggest the hydrophilic character of rutile and synthetic copper powder, and the relatively hydrophobic character of various forms of carbon and of zinc sulfide. Heats of wetting have been determined for these solids in organic liquids, important to paint and other nonaqueous applications. A study of the effect on heat of immersion by organic liquids differing in functional groups, chain length, and branching (47) showed "Graphon" (Cabot) essentially unaffected by these features, while rutile (native TiO_2) varied directly with the dipole movement of the liquid.

Differences in the character of the adsorption sites and in character of the adsorbed material have been investigated. The difference in the hydrophobicity of "Teflon" and "Graphon" were ascribed primarily to the different natures of the nonpolar sites rather than to the distribution of hydrophilic sites on the surfaces (16). Further, "Teflon" was described as having more hydrophilic sites per unit area, of higher adsorption energy than those on the "Graphon" surface. Additive dispersion forces were described (47) as effective with the nonpolar "Graphon," maximum coverage of the surface being attained by adsorbate orientation. For the heteropolar rutile surface and a polar molecule, van der Waals forces would contribute strongly to the interaction energy and adsorbate molecule orientation.

The energy of adsorption of water for the substrate as a function of the number of molar layers was given by Harkins (42) (Table II). This author demonstarted the considerable energy of the first layer and the lowering of attraction as the layer distance from the substrate was increased. (Harkins' heat of immersion is ΔH, to avoid the minus sign of the heat of immersion.) The decrease in energy of adsorption as the distance from the first layer was increased suggested an exponential decay, the energy in the outer layer being one fourth that of the layer next nearer the substrate.

The heat of wetting by water of a variety of silica surfaces of 260 ergs/cm² surface was attributed to its silanol character (190 ergs/cm² rather than to a siloxane (130 ergs /cm²) surface (41). The adsorption of water vapor on powdered lead silicate glass at very low pressures amounted to from 0.1 to 0.4% of the monolayer capacity between 0 and 50°C (92). The heat of adsorption was about 11 kcal/mole and the energy of desorption 13-40 kcal/mole.

Illustrated in Table III are the effects of a polar solvent, a polarizable solvent and a nonpolar solvent on a series of minerals varying in character from strongly hydrophobic to hydrophilic. The $-\triangle H$ for these systems was generally low for the polarizable or nonpolar solvent, but it was noted (49) that in the water/mineral systems the $-\triangle H$ values were of a magnitude greater than that associated with heats of chemical reaction.

For lampblack and graphite in nonaqueous n-alkane adsorbates, the adsorption energy was a linear function of the number of C atoms, and was composed of the adsorption energies of the CH_2 and CH_3 groups. Good agreement was found

Table III. Heat of Wetting by Various Liquids (49)
Liquids — Polar — Water
Polarizable — CCl_4
Nonpolar — C_7H_{16}

Solid	Specific surface sq m/g	Liquid	Heat of Wetting $-\Delta H$ kcal/cm²	$-\Delta H$ kcal/g Atom
Sphalerite (ZnS)	0.87	A—Water	4.9	40
		B—CCl_4	3.1	25
		C—C_7H_{16}	0.81	6.7
Fluorite (CaF_2)	1.35	A	2.5	19.5
		B	0.24	1.9
		C	0.42	3.3
Sylvite (KCl)	0.206	A	—	—
		B	0.3	4
		C	0.82	10
Galena	0.120	A	6.3	68
		B	1.1	12
		C	1.4	15
Quartz	2.13	A	2.1	—
		B	0.29	—
		C	0.43	—

(55) between adsorption energies and those obtained by heats of adsorption for hexane and benzene on graphitic lampblack (12.0 and 10.8 kcal/mole vs. 11.8 and 10.0 kcal/mole, respectively).

A frequently investigated material is cellulose in several forms, all of which exhibit appreciable heats of wetting, varying, however, with the treatment received. Table IV shows the heat of wetting of cotton. It readily becomes apparent that the same material in different forms (or from different sources) may vary considerably in heat of wetting. Viscose (regenerated cellulose) has long been known for its sensitivity to moisture, and its relatively high heat of wetting suggests its strong hydrophilicity. It becomes apparent also that true comparisons are obtained only when identical conditions for measurement are observed.

The initial tendency toward saturation of cellulose by water molecules was said (26) to be their ability to form three H-bonds. The nonsaturating portion of the adsorption was assumed as due to the formation of two H-bonds with the oxygen atoms of cellulose, or of water molecules already adsorbed.

At moisture saturation values, silk had a heat of wetting of less than 0.10 cal/g silk, while that for cotton under the same conditions was 0.30 cal/g (24).

Summary

Heat of wetting of surfaces by a vapor or liquid may indicate much concerning the surface's characteristics. High or low heat of wetting will indicate potential hydrophilicity or hydrophobicity. Choice of nonaqueous solvents for heat of wetting determinations of hydrophobic solids will permit arrangement of both in regular property series. Greatest value may be derived from substrates of known surface area, conditioned to predetermined values. Considerable knowledge of adsorption site characteristics can become available from heat of wetting data. Heats of wetting may decrease beyond the first adsorbed layer, the energy in the next outer layer being one fourth that of the layer next to the substrate.

Cellulose, a frequently encountered substrate in detergency work, may exhibit wetting energy values varying with conditioning, treatment, and source. Saturation of cellulose by water molecules was attributed to hydrogen bonding at three points per unit, the nonsaturating water adsorption being assumed as due to a further two hydrogen bonds either with the oxygen atoms of the structure, or to water molecules already adsorbed

(To be continued)

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Table IV. Heat of Wetting of Cellulose
Temperature—25°C

Form	Regain	Heat of wetting (cal/gm)	Ref.
Cotton	0	11.0	79
Cotton—raw	—	12.3 (65°C)	94
Cotton—mercerized	0	17.5	79
Cellulose—standard	—	9.7	94
"Tenasco"	0	22.9	79
"Fortisan"	0	18.2	79
Viscose	0	25.2	79
Viscose	—	20.3 (30°C)	94
Cellulose acetate	0	8.0	79

—★—

P&G Receives Award

Procter & Gamble Co., Cincinnati, recently was presented the 25th Annual Howard G. Ford Award of the Sales Managers Association of Philadelphia. Thomas J. Wood, sales vice-president of the firm, accepted the award on behalf of the company at the presentation dinner held at the Bellevue-Stratford Hotel, Philadelphia.

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Glycerine Statistics

The Association of American Soap and Glycerine Producers, Inc., New York, recently reported the production and supply of glycerine for January and February 1961. The following figures are in thousands of pounds. Stocks (all grades) at the beginning of February were 58,600 pounds, up from 56,200 pounds in January, as compared with 36,000 pounds in February, 1960. Glycerine production (crude only), was 22,000 pounds, down from 22,700 pounds in January, and compared with 25,000 pounds in February 1960. Disappearance was 20,200 pounds for February, and 21,200 pounds in January, as compared with 22,200 pounds in February 1960.

Imports were 800 pounds for February, down from 1,600 pounds in January, and compared with 300 pounds in February 1960. Exports were 800 pounds in February, up from 700 pounds in January, and compared with 1,500 pounds in February 1960.

TGA Reelects Despres

TOILET goods sales hit an all time high of approximately one billion 800 million dollars in 1960, according to Jean Despres, Coty, Inc. Speaking at the 26th annual meeting of the Toilet Goods Association, in his capacity as TGA president, Mr. Despres said that the 1960 toiletries sales represented an increase of 7¼ per cent over the 1959 figure.

The meeting was held May 9-11, at the Waldorf Astoria Hotel, New York.

Mr. Despres' report was followed by that of association treasurer Philip C. Smith, Yardley of London, Inc. A talk on "People, Places, Things," given by Jim Moran, Jim Moran Associates, New York, concluded the morning session.

Mr. Moran pointed out that "in the fragrance business where a 'nose' is considered a tremendous asset in determining a salable scent, there's a woeful indifference to the fact that a nose for news and publicity is equally important." He warned that "the same imagination and excitement that goes into the creation of a scent must be applied to the image of the industry. Perfumes, cosmetics and toiletries are an acknowledged part of everyday life. Therefore, every aspect of this industry, merchandising, sales and publicity, should have this same scent of excitement."

Following Mr. Moran's talk, TGA members reelected the following officers to one year terms: president, Jean Despres; vice-presidents, Oscar Kolin, Helena Rubenstein, Inc.; J. I. Poses, D'Orsay Sales Co.; George L. Schultz, Shulton, Inc., and D. H. Williams, Sterling Drug, Inc.; treasurer, Philip C. Smith, Yardley of London, Inc., and secretary, William F. Denney, Jr., Frances Denney.

Joseph A. Danilek, Mary Chess, Inc.; Richard L. Gelb, Clairol, Inc., and Richard J. Livingston, Dana Perfume Corp., were elected to the board of the TGA for three year terms. Directors who were re-elected for three year terms are: Charles W. Hancock, Morton Mfg. Corp.; John E. Hardy, Daggett & Ramsdell, Inc.; J. B. Nethercutt, Nethercutt Laboratories and Richard Salomon, Charles of the Ritz, Inc. George E. Davidson, Art Decorating Co., was elected a director, for one year, representing the associate membership. Re-elected for one year representing the associate membership was Daniel H. Reheis, Reheis Co.

In the president's address, given at the luncheon, Mr. Despres stated "that the practice of the cardinal virtues of the industry, 'imagination,' 'scientific know-how,' 'good taste' and 'beauty' had resulted in record sales for 1960."

Drug stores, both independent and chain operations, totaling 54,000 outlets throughout the country, accounted for 26.2 per cent of total retail sales of toilet goods. Second in point of volume, are the food stores with 22.9 per cent of the total. House to house sales accounted for 20.9 per cent, followed by department stores and specialty stores with 17.5 per cent; limited price variety stores 8.8 per cent, and other retail outlets, 3.1 per cent.

Mr. Despres offset this bright outlook by declaring that "the fair trade situation is not good at all. At the present moment, there are 26 states where there is a fair trade law which is enforceable, and 24 states where it can no longer function as it was supposed to."

"As a rule those (price-cutting) retailers think they are doing you a favor by helping to broaden the sale of merchandise. And so,

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Robert C. Ring, sales manager, Duveen Soap Corp., and president of CIBS (Cosmetic Industry Buyers' and Suppliers Association), presents 1961 Annual CIBS Awards to Dr. Martin M. Rieger and Dr. Stanley Brechner, of Warner-Lambert Pharmaceutical Co., for their paper "Studies on the Adsorption of a Simple Dyestuff by Hair," at luncheon May 11th, of the Scientific Section of the TGA. Over 600 technical people attended the meeting and luncheon at the Waldorf-Astoria Hotel New York City, during the annual TGA convention.

The U. S. Surfactant Industry

Requirements for Detergent Bar

Soap	Bar characteristics	Other detergents
	Feel	
Highly satisfactory.	Must be soft and soap-like.	Fat-derived detergents are softer and less harsh than petroleum-based detergents. Neither is as satisfactory as soap.
	Foam	
Excellent in soft water; very poor in hard water.	Must lather well in a trace of water and foam in a large volume of water.	Hydroxyethane sodium sulfonate ester of myristic acid is very good in a trace of water. Palmitoylmethyltaurine is very good in dilute solutions. Mixture has merit.
	Resistance to Hard Water	
Very unsatisfactory. Soap can be improved by admixture with sequestering agents. Sodium ethylene-diamine tetra-acetate is effective.	Indicated by clarity of solution in hard water.	Most other detergents are satisfactory in all waters, some are excellent in hard water.
	Semiresistance to Hard Water	
Unsatisfactory. A dispersing agent might be found which would impart this characteristic to soap.	Colloidal suspension but no precipitate.	Most other detergents, if not clear, will form colloidal suspensions.
	Erosion	
Very satisfactory.	Bar must dissolve slowly in water.	Most other detergents are too soluble. Palmitoylmethyltaurine solubility is satisfactory in cold water; too soluble in hot water. All detergents, other than soap, require rosin and/or stearic acid to retard solubility.
	Price	
Bar soaps are cheaper than bar detergents.	Should be competitive with present bars.	Bar detergents must necessarily be formulated and presently sell at a premium over soap bars.
	Rinsability	
Due to the precipitation of soap in hard water, soap appears to rinse fast but requires more rinsing in soft water.	Fast rinsing desirable.	All other detergents require more rinsing.

Part II.

THE year 1950 marked the acceptance of dodecylbenzene sulfonate for use as a household liquid and powder detergent at the expense of soap. Success can be directly attributed to the price as well as to successful formulation with inorganic polyphosphates as detersive extenders, coconut oil amides as foam stabilizers, and carboxymethylcellulose as a soil suspender.

Equal potentialities are now awaiting an effective formulation for a bar detergent for household use. Bar soap might retain its present position, but only if it joins the race for a correct formulation. Detergent bars, unlike soap bars, will require inert builders, solubility retarders, suspending agents, and foam stabilizers. The ingredients that may be used to improve the formulation include agricultural materials such as starch, stearic acid, rosin, carboxymethylcellulose, lignin, lecithin, coconut oil amides, and even plain soap itself. As a guide for researchers, the required characteristics of a bar are listed in descending importance with notations applicable to soap in comparison with all other detergents.

Summary

In this report, surfactants are described according to their structures, properties, and uses (Tables 1 and 2), classified and illustrated according to their ionization characteristics (Table 3), and an estimate has been made of the annual requirement of important agricultural chemicals in the surfactant industry (Table 5).

The surfactant industry,

By Jackson J. Ayo, Jr., Johannes H. Bruun, and John R. Matchett,

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Washington 25, D. C.

soap included, is currently rated at 2.4 billion pounds valued at $589 million (Table 6), and although the combined sales volume has remained at a fairly constant level over the past decade (Fig. 1), soap, which formerly accounted for nearly 100% of total surfactant sales is now only 44% (Fig. 2). This represents a displacement of approximately 1¼ billion pounds of soap.

In 1948, research on formulation of surfactants for household use resulted in an efficient formula using only ¼ pound of surfactant and extending this to one pound with inorganic tripolyphosphate and other ingredients. Dodecylben-

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Table 4.—Sales of All Surfactants According to Ionic Classification, Excluding Soap

Class	1957	1958	1959	1959 value
	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 dol.
Anionic	867,000	900,579	1,015,834	165,098
Cationic	14,000	25,886	30,580	15,654
Nonionic	240,000	273,776	312,948	85,893
Amphoteric (estimated)	2,000	2,299	2,500	1,250
Total, 100% basis[1]	1,123,000	1,202,540	1,361,862	267,895
Total, "as sold" basis[2]	(2,895,800)	(2,951,400)	(3,203,400)	(774,200)

[1] These figures are based on 100% actual surfactant, U. S. Tariff Commission, 1957, 1958, and 1959.
[2] These figures are based on an "as sold" basis including builders and nonactive ingredients.
Source: Chemical Economics Handbook, Stanford Research Institute, Vol. 5, 590.45, 590.49.

Table 5.—Agricultural Chemicals In Surfactants[1]

Classification of surfactant	1959 sales (pounds)	Representative member	Agricultural component	Agricultural component percentage	Agricultural component weight (pounds)
Lignin derivatives, sulfonated (anionic)	195,558,000	Lignosulfonic acid, calcium salt	Lignin	80	156,446,000
Naphthalene derivatives, sulfonated (anionic)	3,480,000	Dibutylnaphthalenesulfonic acid, sodium salt	Butyl alcohol[2]	38	1,322,000
Acyclic esters and ethers, nonsulfonated (nonionic)	67,217,000	Glycerol monostearate	Glycerol[2]	14	9,410,000
			Stearic acid	21	[4]14,116,000
	51,379,000	Polyethoxyethyl oleyl ether	Oleyl alcohol	24	[5]12,331,000
Nitrogen-containing acyclic surfactants, nonsulfonated (amphoteric, anionic, cationic, and nonionic)	90,957,000	Coconut oil amide of mono(diethanolamine)	Coconut oil acid	70	[4]63,670,000
Salts of fatty acids, nonsulfonated (anionic)	12,598,000	Potassium tallate	Tall oil acid	88	[4]11,086,000
Acyclic acids, alcohols, esters, ethers, sulfated and sulfonated (anionic)	194,366,000	Dodecyl sulfate, triethanolamine salt	Lauryl alcohol	65	[6]126,338,000
Nitrogen-containing acyclic surfactants, sulfated and sulfonated (anionic)	13,532,000	Oleoylmethyltaurine	Oleic acid	66	[4]8,931,000
Miscellaneous oils, fats, and waxes, sulfated and sulfonated (anionic)	12,032,000	Castor oil, sulfonated	Castor oil	70	[7]8,422,000
Soap (anionic)	1,066,400,000	Soap	Tallow acid[3]	72	[4]767,808,000
			Coconut oil acid	14	[4]149,296,000
					1,329,176,000

[1] The amount of agricultural chemicals required for the representative member, or members, of each group classification was extrapolated on the basis of entire sales for the group.
[2] May also be considered as a petroleum chemical.
[3] Equivalent tallow is 15% greater.
[4] Includes smaller amounts of other fatty acids.
[5] Includes an undisclosed amount of tall oil acid.
[6] Includes smaller amounts of other fatty alcohols and fatty acids.
[7] Includes smaller amounts of other oils.

Table 6.—Sales of All Surfactants Based on Origin of Chief Raw Material[1]

Surfactant	Origin						Value[4]	
	Agriculture			Petroleum or coal			Agriculture	Petroleum or coal
	1,000 lbs.			1,000 lbs.			1,000 dol.	
	1957	1958	1959	1957	1958	1959	1959	
Nonylphenoxy polyethoxyethanol				28,327	43,969	58,669		13,056
Other cyclic esters and ethers, nonsulfonated				40,475	40,877	51,520		15,175
Benzyldodecyldimethylammonium chloride				565	749	2,099		1,600
Other nitrogen-containing cyclic surfactants, nonsulfonated				7,768	8,459	8,750		5,171
Dodecylbenzenesulfonic acid					63,320	51,075		11,951
Dodecylbenzenesulfonic acid, sodium salt				[2]455,057	402,246	[3]461,814		68,042
Dodecylbenzenesulfonic acid, triethanolamine salt					2,218	2,268		685
Other alkyl benzenoid compounds, sulfated and sulfonated				16,689	9,150	11,536		3,606
Lignosulfonic acid, calcium salt	[2]153,142	114,257	163,206				7,384	
Other lignin derivatives, sulfonated		26,488	32,352				2,025	
Butylnaphthalenesulfonic acid, mono and di				1,758	1,043	1,233		646
Other naphthalene derivatives, sulfonated				2,112	1,953	2,247		814
Toluene sulfonic acid, sodium salt				7,124	8,504	8,995		891
Xylene sulfonic acid, sodium salt				—	12,577	15,900		1,519
All other miscellaneous sulfated and sulfonated cyclic surfactants				27,577	28,810	23,407		6,693
Diethylene glycol monolaurate	661	517	652				205	
Diethylene glycol mono-oleate	225	131	160				48	
Diethylene glycol monostearate	955	1,003	897				267	
Ethylene glycol monostearate	377	390	434				162	
Glycerol mono-oleate	1,145	816	919				281	
Glycerol monostearate	12,195	20,337	21,900				5,366	
Polyethoxyethyl dilaurate	488	327	380				147	
Polyethoxyethyl dioleate	211	523	498				180	
Polyethoxyethyl monolaurate	1,044	1,134	1,951				841	
Polyethoxyethyl mono-oleate	1,241	1,605	1,641				652	
Polyethoxyethyl monostearate	2,799	1,949	2,434				981	
Polyethoxyethyl oleyl ether	—	1,180	1,736				1,001	
Polyethoxyethyl tallow ester	415	147	—				—	
Polyethoxyethyl tridecyl ether				3,739	4,728	5,851		1,681
1,2-Propanediol monolaurate	145	155	315				135	
Other acyclic esters and ethers, nonsulfonated	82,050	84,510	84,679				20,971	
Stearamide of aminoethylethanolamine	2,125	1,703	984				612	
N,N-Bis(2-hydroxyethyl)dodecanamide	—	394	3,346				1,582	
N,N-Bis(2-hydroxethyl)octadecanamide	897	1,117	1,056				411	
N,N-Bis(2-hydroxyethyl)oleamide	801	807	717				271	
Coconut oil amide of bis(diethanolamine)	7,520	4,678	3,992				1,370	

Table 6 (continued). Sales of All Surfactants Based on Origin of Chief Raw Material[1]

Surfactant	Origin						Value[4]	
	Agriculture			Petroleum or coal			Agriculture	Petroleum or coal
	1,000 lbs.			1,000 lbs.			1,000 dol.	
	1957	1958	1959	1957	1958	1959	1959	
Coconut oil amide of mono(diethanolamine)	4,671	16,147	15,958				6,121	
Comonut oil amide of diethanolamine, neither bis nor mono	786	581	4,413				1,315	
Stearamide of diethylenetriamine	—	365	—				—	
Other nitrogen-containing acyclic surfactants, nonsulfonated	57,317	65,165	73,291				29,232	
Phosphorus-containing acyclic surfactants, nonsulfonated	1,040	1,262	1,489				645	
Coconut oil, potassium salt	39	84	56				22	
Potassium oleate	709	404	345				53	
Potassium tallate	—	3,340	3,611				652	
Sodium stearate	717	1,237	1,688				834	
Tallow, sodium salt	—	3,091	2,971				324	
Other salts of fatty acids, nonsulfonated	7,788	3,881	3,927				670	
Oleic acid, sulfonated	1,903	1,839	1,667				704	
Dodecyl sulfate, ammonium salt	—	481	520				271	
Dodecyl sulfate, triethanolamine salt	3,780	3,640	4,537				1,274	
Isopropyl sulfo-oleate	714	953	349				144	
Propyl sulfo-oleate	1,054	786	968				226	
Other acyclic acids, alcohols, esters, ethers, sulfated and sulfonated	146,352	171,158	186,325				39,870	
Coconut oil amide of monoethanolamine, sulfated, potassium salt	89	101	111				89	
Oleoylmethyltaurine (estimated)	3,000	3,541	2,906				2,100	
Other nitrogen-containing acyclic surfactants, sulfated and sulfonated	2,151	8,353	10,515				4,561	
Neat's foot oil, sulfonated	1,193	1,397	655				105	
Tallow, sulfonated	6,635	6,768	2,856				357	
Tall oil, sulfonated	347	331	201				69	
Castor oil, sulfonated	5,063	5,592	3,814				989	
Coconut oil, sulfonated	648	390	276				84	
Peanut oil, sulfonated	1,841	1,871	—				—	
Rice-bran oil, sulfonated	224	173	105				27	
Soybean oil, sulfonated	291	189	203				76	
Other oils, fats, and waxes, sulfated and sulfonated	2,860	2,650	3,922	2,860	2,650	3,922	1,077	1,077
TOTAL	519,648	569,938	651,928	594,051	631,253	709,286	136,783	132,607
SOAP[3]	1,188,900	1,138,100	1,066,400				319,200	
GRAND TOTAL	1,708,548	1,708,038	1,718,328	594,051	631,253	709,286	455,983	132,607

[1] Chief raw material means the basic characteristic starting material, usually, but not always, the most expensive item and/or the greatest weight in the finished molecule. For this table, the U. S. Tariff Commission's chemical designations of surface active agents have been used, as well as the statistical data contained in the year'y reports of production and sales of synthetic organic chemicals. Data are given in terms of 100-percent content of surface active agents, exclusive of all inorganic salts, water, or other ingredients.

[2] Includes tridecylbenzene sulfonic acid, sodium salt.

[3] All soap figures are taken from Chemical Economics Handbook, Stanford Research Institute.

[4] Total sales value, agriculture $136,783,000, petroleum and coal $132,607,000, are compiled from U. S. Tariff Commission 1959 Production and Sales. Preliminary data: figures are for 100% actual surfactant without value of formulation with other ingredients. Total value on an "as sold" basis including builders and other nonactive ingredients is much higher at $774,200,000 according to Chemical Economics Handbook, Stanford Research Institute.

Cosmetic Chemists Meet

Special award presented to J. T. Davies, head of the chemical engineering dept. University of Birmingham, England

THE semi-annual scientific meeting of the Society of Cosmetic Chemists, held May 12 at the Biltmore Hotel, New York, was highlighted by bestowal of the society's special award upon a distinguished British scientist and by a paper on advances in shellac technology.

Shellac should no longer be regarded as a commodity but as a complex of chemicals, pliable to the needs of the formulator of hair sprays and other toiletries, according to Herbert Cockeram of Acme Shellac Products Co., Newark, N.J. Mr. Cockeram's paper dealt with "Physical and Chemical Properties of Shellac and its Derivatives."

A revival of interest in shellac as a hair spray ingredient was noted by the speaker who suggested that the time had come to assemble the scattered information on the subject. Shellac is nontoxic and actually used as a coating of pharmaceuticals for oral administration. With molecular weights ranging around 1500 to 1800, it may be considered a low polymer, but does not share the extreme brittleness often exhibited by resins of similarly low molecular weights, it was pointed out.

Modern methods of analysis reveal shellac to be composed of aleuritic acid (46%), shellolic acid and homologs (25%), kerrolic acid, butolic acid, and a number of minor constituents. The aleuritic acid has chains of seven methylene groups which are credited with imparting "internal plasticity" to the material.

Recent technological developments have succeeded in breaking down shellac into its basic building blocks and reassembling these into materials of broader usefulness. New esters have emerged with controlled moisture content and other desirable properties, the speaker reported.

Joseph B. Jerome of the American Medical Association's Committee on Cosmetics presented a talk on "Promising Areas of Cooperation Between the Committee on Cosmetics of the American Medical Association and the Society of Cosmetic Chemists." The marketing of *safe* cosmetic products is the common goal of all groups currently concerned with various aspects of this field. "Another important point is the efficacy of the product," Dr. Jerome pointed out and elaborated that "it should have the effect it is claimed and expected to have."

Available data on skin and hair should be pooled, reviewed and evaluated jointly by the cosmetic chemists and the AMA committee, Dr. Jerome suggested. Procedures for evaluation of cosmetics ingredients should be standardized and establishment of standard nonproprietary nomenclature for such materials should be regarded a common aim, he said.

Labeling of cosmetics should give qualitative and quantitative information on active ingredients, the speaker believes. He called upon industry to support basic research outside its own laboratories, to release information "which is no longer of immediate commercial significance." He would like to see safety pretesting of cosmetics enforced, ingredient information centers established, and advertising claims more closely controlled.

(*Turn to Page* 122)

Dr. J. T. Davies, receiving the annual special award of the Society of Cosmetic Chemists from Dr. Sophie L. Plechner, president of the Society.

Speakers and program chairman at the semi-annual scientific meeting of the Society of Cosmetic Chemists, left to right: Dr. Jack J. Goodman, The Toni Co.; Dr. Joseph B. Jerome, American Medical Association; Dr. Richard E. Faust, Potter Drug and Chemical Corp.; Herbert Cockeram, Acme Shellac Products Co.; Morris J. Root, G. Barr & Co., program chairman; A. P. Kent, Colgate-Palmolive Co.; Theodore Swenson, Helene Curtis Industries, Inc. and Dr. Gilbert Leigh, Colgate-Palmolive Company.

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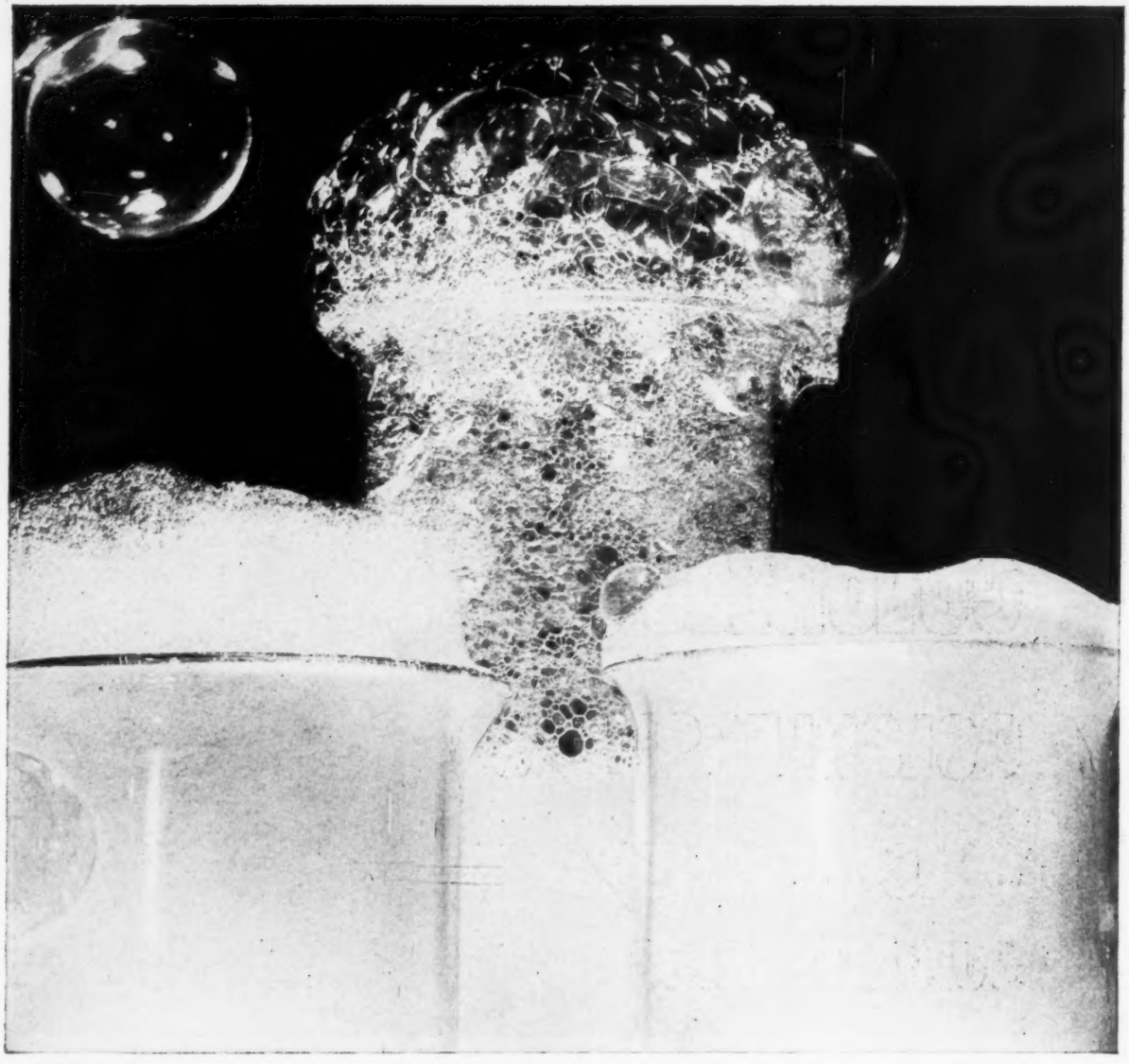

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CSMA president, Charles E. Beach, addresses luncheon meeting during 47th mid-year gathering of Chemical Specialties Manufacturers Assn. in Chicago, May 17. Mr. Beach, who is president of John C. Stalfort & Sons, Inc., Baltimore, in his address as president of CSMA, discussed "The Challenge to Management in the Decade of the Sixties."

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SPEAKERS' TABLE (left to right): Dr. Clifford Rassweiler, vice-president for research and development, Johns Manville, who spoke at the May 16 luncheon on "Putting Chemicals to Work"; H. W. Hamilton, left, presents scroll to Michael Lemmermeyer of Aromatic Products Corp. for his work as official portrait painter of CSMA; Fred Lodes, Lodes Aerosol Consultants, Inc., New York, making announcements during May 16 luncheon, and Charles E. Beach, head of John C. Stalfort & Sons, Inc., Baltimore, making his address as president of CSMA at the luncheon on May 17. Mr. Beach spoke on "The Challenge to Management in the Decade of the Sixties."

CSMA Midyear Meeting

WHEN delegates to the attendance-record-breaking 47th midyear meeting of the Chemical Specialties Manufacturers Assn. filled to overflowing the ballroom of the Drake Hotel, Chicago, the morning of May 17, to hear a discussion of hazardous products labeling, they revealed what was uppermost in their minds.

The "tough" proposed regulations, published April 28, for the enforcement of the Federal Hazardous Substances Labeling Act, were dissected word by word, and line by line at various committee meetings during the CSMA convention. Out of these meetings, CSMA hopes to establish specific, sound objections to the regulations in their present form. Because the regulations and the Act are aimed so specifically at the maker of chemical specialties, few of the 945 registrants at the meeting were unconcerned with the regulations.

In terming this latest development in hazardous substances labeling "The harshest legislation ever directed at chemical specialties," one veteran of the industry urged all those present join in the fight on the regulations. "Let your representatives in both houses of Congress know what specific objections you have to the regulations," this industry spokesman declared.

CSMA's principal objections to the regulations seem to be that they go far beyond the intent of Congress, which last year passed the Hazardous Substances Labeling Act. In addition, the industry feels that the present regulations will result in overlabeling, by which the effect of proper precautionary or warning labels is lost. There are, of course, numerous specific objections to the regulations. CSMA will submit its detailed objections to the Department of Health, Education, and Welfare before the June 27th deadline.

There was good news for specialties makers at the 47th midyear meeting of CSMA, too. Surveys of five categories of products showed sales gains for two, a slight decline for a third and more substantial drops for two others. Aerosol sales continued their upward

Three delegates to CSMA meeting in Chicago, last month, look over precautionary labeling exhibit at Hotel Drake. Twenty leading manufacturers of chemical specialties contributed specimen packages to illustrate correct precautionary labeling required under recent federal legislation. Exhibit was set up under direction of Dr. Emil G. Klarmann, chairman of CSMA Precautionary Labeling Committee and George Scriba, vice-chairman.

curve; antifreeze sales moved slightly higher in 1960 than in the previous year; declines were registered for automobile cooling system chemicals, hydraulic brake fluids and auto waxes and polishes, which showed the largest decline in 1960, as compared with '59.

Details on these figures appear elsewhere in this report.

Automotive Division

IN spite of generally depressed business conditions in 1960 and a decrease in the auto market, sales of automotive chemical specialties held up fairly well. This is evident from the product surveys presented May 16 by J. M. Hogrefe of Union Carbide Chemicals Co. in his capacity as chairman of the Products Development Committee of CSMA's Automotive Division.

Combined civilian antifreeze sales, both volatile and ethylene glycol types, totalled 120,903,283 gallons in 1960, compared with 120,148,183 gallons reported in 1959. Ethylene glycol based antifreeze sales reported by nine firms accounted for about 91 per cent of the total 1960 sales, amounting to 110.5 million gallons, of which 77.5 million gallons were sold in packaged form. Bulk units amounting to 25.5 million gallons went to packagers and 7.3 million gallons to motor vehicle manufacturers.

Of the 10.4 million gallons of methanol antifreeze sold by 10 firms in 1960, packaged units accounted for 5.9 million gallons; packagers bought 3.8 million gallons and auto manufacturers 624,796 gallons in bulk.

CSMA Survey of Antifreeze Sales in 1960 and 1959
(Domestic sales, civilian and government, excluding sales to the producers)

	Gallons	
Ethylene Glycol Base Antifreeze	**1959**	**1960**
1. Packaged Ethylene Glycol Antifreeze sold in Quarts	11,257,730	11,194,987
Gallons	59,266,709	61,794,042
Drums	3,903,823	4,567,217
Total	74,428,262	77,556,246
2. Bulk Ethylene Glycol Antifreeze (or Ethylene Glycol for antifreeze) sold to packagers	27,737,230	25,574,918
3. Bulk Ethylene Glycol Antifreeze (or Ethylene Glycol for antifreeze) sold to motor vehicle manufacturers for "drive-away" or factory fill use	5,894,247	7,316,007
Total Ethylene Glycol Antifreeze	108,059,739	110,447,171
Methanol Base Antifreeze		
1. Packaged Methanol Antifreeze sold in Quarts	1,816,264	1,468,888
Gallons	3,912,089	2,970,621
Drums	2,126,836	1,510,658
Total	7,855,189	5,950,167
2. Bulk Methanol Antifreeze (or Methanol for antifreeze) sold to packagers	3,614,868	3,880,149
3. Bulk Methanol Antifreeze (or Methanol for antifreeze) sold to motor vehicle manufacturers for "drive-away" or factory fill use	668,387	624,796
Total Methanol Antifreeze	12,138,444	10,455,112

Left to right, top to bottom.

First row: A. A. Mulliken and H. W. Hamilton, CSMA, Fred. G. Lodes, Lodes Aerosol Consultants, Inc., and John Stoddard, Prentiss Drug & Chemical Co. Melvin Fuld, Fuld Brothers, Inc., and James E. Ferris, Hooker Chemical Corp. Robert Pokorny, C. B. Dolge Co.; Glenn Doerr, Federal Varnish Division, and Joseph J. Tomlinson, General Chemical Division, Allied Chemical Corp.

Second row: Anthony J. Hersch, Boyle-Midway Division, American Home Products Corp.; R. E. Vicklund, Sindar Corp.; and Otto A. Weil, Aerosol Research Co. Arthur Bohnert, Federal Varnish Division and George Curtis, American Can Co. Harry E. Peterson, Peterson Filling & Packaging Corp.; Dean M. Rockwell, Impact Container Corp., John Morano, Western Filling Corp., and Don Menhenett, Eveready Pressurized Products, Inc.

Third row: Ralph Hamilton, Baird & McGuire, Inc.; Philip Mueller, Olin Mathieson Chemical Corp.; Cameron Baird, Baird & McGuire, and Clarence L. Weirich, C. B. Dolge Co. Jacob Kahn, Windsor Wax Co. and Bayard S. Johnson, Purex Corp. Fred Pressant, Aerosol Techniques, Inc.; Joseph C. Pizzurro, and A. P. Ferrara, Precision Valve Corp.

Fourth row: Arnold Roth; T. R. Moore, General Aniline & Film Corp.; Carlos Kampmeier, Rohm & Haas Co. Louis Sesso, S. C. Johnson & Son, Inc. and Lawrence P. Hall, Jr., Freon Products Division, du Pont. Robert Sweet, Schenectady Varnish Co.; Albert R. Schuster, Charles T. O'Connor and Travers O'Connor, all of Shanco Plastics & Chemicals, Inc.

Fifth row: Howard Litel, Conco Chemical Co.; Jack Holz, Union Carbide Chemicals Co., division of Union Carbide Corp., and Earl Brenn, Huntington Laboratories, Inc. Harry W. Gaffney and Joseph B. Moore, both McLaughlin Gormley King Co. Paul Ferguson, Food Machinery and Chemical Corp., Paul Sperry and Robert Brown, Fritzsche Brothers, Inc., and Leonard J. Oppenheimer, West Chemical Products, Inc.

Automobile cooling system chemicals production, exclusive of antifreeze, reported by 28 manufacturers in 1960, showed a slight decline. Number of individual consumer size (one-treatment) packages sold totalled 32,436,897 in 1960, compared with 33,553,619 units in 1959.

Cooling system cleaners sales were a little higher than in 1959 while the market for sealers showed a considerable drop.

Volume of hydraulic brake fluid compounded declined about

CSMA Survey of Hydraulic Brake Fluid Volume Compounded in the Years 1957-1960

	1960 Gallons	%	1959 Gallons	%	1958 Gallons	%	1957 Gallons	%
1. SAE								
70 R3	3,781,894	35.6	3,754,387	31.8	7,778,393	79.1	7,028,637	67.5
70 R1	5,643,517	53.1	5,402,311					
Former 70R2	791,971	7.5	1,154,252	9.8	1,285,352	13.1	2,167,335	20.8
2. Govt. Spec.	+		916,985	7.8	+		55,127	0.5
3. Non-Spec.	406,853	3.8	570,136	4.8	771,066	7.8	1,160,687	11.1
Toatl	10,624,235	100.0	11,798,071	100.0	9,834,811	100.0	10,411,786	100.0
Number of firms reporting	21		28		28		31	

+ Too revealing to be released.

10 per cent in 1960 from the level reported in 1959. According to Mr. Hogrefe this drop is due only in part to general business conditions, with an unusually heavy inventory buildup during 1959 playing a major role in the change.

In 1960 only 21 firms contributed to the survey, compared with 28 in 1959. Some of the firms who formerly participated are now buying finished compounded brake fluid, Mr. Hogrefe stated.

Nearly 25 million packages of automobile waxes and polishes were produced in 1960 by 25 manufacturers participating in the second CSMA survey of these products. This compares with 35.6 million packages produced in 1959. Aerosols, reported for the first time, accounted for 1,414,642 units.

A large percentage of the 1959 total was for inventory of newly introduced combination cleaner/wax products, Mr. Hogrefe said. This may in part explain the discrepancy between the two surveys.

Production of products in liquid form amounted to 13.9 million packages, as compared to a figure of 8.9 million packages in paste form. Almost 9.5 million packages were combination cleaner and wax products in either paste or liquid forms. Packages over 20 ounces and less than five gallons reached a total of 454,408.

Following Mr. Hogrefe's presentation of product surveys, Art Connolly of Simoniz Co., gave a talk entitled "From the Cradle to the Consumer."

With the notable exception of windshield de-icers and certain types of polishes, the automotive specialties market has been comparatively static in recent years, according to James W. Partner of Audits & Surveys Co., New York. Discussing "What's Ahead in the Changing Automotive Specialties Market" Mr. Partner traced some of the trends currently at work in this market.

Changes in design and fin-

(*Turn to Page* 72)

CSMA Survey of Automobile Wax and Polish Production — 1960 and 1959

	1960 No. of Individual Packages 20 Oz. & Less	1960 No. of Individual Packages Over 20 Oz. & Less than 5 Gal.	1959 No. of Individual Packages 20 Oz. & Less	1959 No. of Individual Packages Over 20 Oz. & Less than 5 Gal.
A. Liquid Form				
1. Pre-wax cleaner	2,322,190	87,483	2,952,265	100,959
2. Polish and cleaner — No wax content	4,783,857	218,792	5,573,106	284,505
3. Combination cleaner and wax	4,823,587	24,196	10,452,718	26,746
4. Liquid wax for automobiles	+	+	1,034,409	+
5. Chromium cleaner	2,049,192	9,069	2,411,507	11,082
Total Liquid Form	13,978,826	339,540	22,424,005	423,292
B. Paste Form				
1. Pre-wax cleaner	2,208,462	144,868	1,692,146	102,983
2. Automobile wax	2,037,195	+	2,762,104	+
3. Combination cleaner and wax	4,662,508	+	8,769,814	+
Total Paste Form	8,908,165	114,868	13,224,064	102,983
C. Aerosols — All Sizes	1,414,642	0	+	0
Grand Total	24,301,633	454,408	35,648,069	526,275

+ Too revealing to be released.

Facing page, left to right:

Top row: D. Lyle Coleman, American Cyanamid Co.; George Hartz, Prentiss Drug & Chemical Co., and George A. Isenman, Beacon Co. Carl D. Durant and Ralph R. Legate, Aerocide Dispensers, Ltd. Eugene Barnett and Gene Rose, Gene Rose Co. and Fred T. Reid, Freon Products Division, E. I. du Pont de Nemours & Co.

Second row: Philip Scrovnal and Al G. Bowers, Pioneer Manufacturing Co., and William H. Joy, American Telephone and Telegraph Co. Lyons B. Joel, II, Selig Co. and Paul E. Greenberg, Treplow Products, Inc. Thomas C. Dabovich, Morton Chemical Co. and Glenn E. Doerr, Federal Varnish Division.

Third row: Earl Brenn, Huntington Laboratories, Inc.; Rebecca L. Shapiro, Hudson Laboratories, Inc., and Bernard Kroot, Huntington. Adair Baker, Vestal, Inc., and K. C. Jones, Bareco Wax Co. Division of Petrolite Corp. Charles O. Rader, Aero-Chemicals Fillers, Inc.; Fred Taylor, Lehn & Fink Products Corp., and James D. Russo, Aerosol Techniques, Inc.

Fourth row: Mark L. Hill, Gulf Research & Development Co.; H. F. Pierce, Hercules Powder Co., and M. G. Firestone, Gulf. John Stoddard, Prentiss Drug & Chemical Co. and Al. G. Peck, Peck's Products Co. John Matthews, Airosol Co. and Thomas D. Johnson, Jr., Freon Products Division, du Pont.

Fifth row: Harvey White, Puritan Aerosol Corp.; Donald M. King and Gerard R. DeNapoli, Masury-Young Co. A. Haldane Gee, Foster Dee Snell, Inc. and C. Filter, Midland Laboratories. D. C. Lewis, Monsanto Chemical Co. and Louis Wells, Dumas Milner Corp.

CSMA Survey of Automotive Cooling System Chemicals Production (exclusive of antifreeze) Comparison of Five Annual Surveys, 1956-1960.

	1960	1959	1958	1957	1956
	Number of Individual Consumer Size (1-Treatment) Packages				
A — Cooling System Cleaners					
1. Dry form, two phase type cleaner and neutralizer	1,731,174	1,426,279	1,300,901	1,399,163	1,840,171
2. Dry form, one phase	531,444	468,932	613,040	441,485	469,864
3. Liquid form	3,604,012	3,549,427	2,710,047	2,203,305	2,368,989
Total	5,866,630	5,444,638	4,623,988	4,043,953	4,679,024
B — Cooling System Sealers					
2. Dry form, except block sealers	10,564,365	11,325,641	9,753,311	9,390,758	8,894,377
1. Liquid form, except block sealers	1,219,320	3,753,849	1,154,396	998,761	1,080,055
3. Heavy duty and block sealers	2,619,272	1,872,136	1,523,156	1,292,640	1,217,892
Total	14,402,957	16,951,626	12,430,863	11,683,159	11,192,324
C — Cooling System Inhibitors					
1. Dry form	925,820	996,992	442,240	*	580,211
2. Liquid form			*	464,109	1,136,793
D — Combination Water Pump					
Lubricant & rust inhibitor	10,616,366	10,160,363	9,161,030	7,365,665	6,600,532
E — Others	625,124	*	*	*	*
Total Consumer Packages Reported	32,436,897	33,553,619	26,658,121	23,556,886	24,188,884
	Bulk Production (Packages Larger Than 1-Treatment) — Gallons				
Combination Water Pump Lubricant & Rust Inhibitor	24,864	25,341	51,844	41,198	42,449
Number of Firms Reporting	28	26	26	24	23

ish of cars have tended to exert a limiting effect on specialties sales, Mr. Partner said. Improved paint finishes and partial substitution of stainless steel and aluminum for chrome trim cut demand for waxes and chrome cleaners, he pointed out.

Modern cars need fewer oil changes, modern tires fewer checks. These developments cut time the customer spends in the gas station and reduce impulse sales. Aluminum engines, compact cars, air cooled engines, all cut need for automotive specialties.

Changes in consumer attitudes must be understood by the actual or would be marketer of automotive specialties. Convenience is the alpha and omega of a successful consumer product according to Mr. Partner. An aerosol will sell if it is functional, a one-step product rather than a two step item, and so on. Women constitute a growing percentage of the automotive specialties consumers, a fact that the formulator and marketer must keep in mind.

Changes in retail distribution pattern is another factor that automotive specialties manufacturers must keep in mind. Consumer goods move no longer exclusively through the conventional channels of distribution, but through food outlets and other marginal retail stores, Mr. Partner pointed out. He suggested a number of ways in which the current challenge might be met by the industry.

Of the common mineral impurities encountered in water, chloride and sulfate are most detrimental to steel. No single impurity affects the corrosion of aluminum to the degree that mixed impurities do. This is the crux of findings presented by Leonard C. Rowe and Monte S. Walker of General Motors Corp., Warren, Mich., in a paper entitled "The Effect of Mineral Impurities on the Corrosion of Aluminum and Steel."

The effect of single or mixed impurities in water on the corrosion of aluminum and steel was studied by determining variations in corrosion rates. The conductance technique used in this study is based upon the concept that a change in the electrical conductivity of a thin meal strip reflects the corrosion which has occurred.

Tests were conducted with chloride, sulfate, bicarbonate, carbonate, calcium, magnesium, and silicate. A solution containing soluble salts of copper, chloride, and bicarbonate has an accelerating effect on the corrosion rate of aluminum.

Waxes, Polishes, Floor Finishes

CONSUMER habits prevailing in European polish markets, and raw materials and practices used in the industry were analyzed and compared with conditions in the United States by Wolfgang Sapper of Farbwerke Hoechst A.G., Gersthofen, Germany. Dr. Sapper spoke at the Waxes, Polishes and Floor Finishes Division's session, Tuesday morning, May 16. In discussing "Products and Raw Mater-

CSMA Survey of Non-Food Aerosol and Pressurized Products Filled by 128 Firms in U. S. and Canada in 1960 and 1959

(Totals for 1960 appear in bold type)

Product	Number of Units Filled: Glass & Plastic Containers All Sizes	Metal Containers: 16-Ounce But Over 12	Metal Containers: 12-Ounce But Over 6	Metal Containers: 6-Ounce And Less	Total
Insect Sprays					
1. Space insecticides	+	**15,414,461**	**21,250,753**	**452,961**	**37,118,175**
	0	16,621,048	20,741,202	1,388,398	38,750,648
2. Residual insecticides, all types (such as roach and ant sprays, insect repellents, plant, etc.)	+	**11,318,768**	**8,283,297**	**5,897,230**	**25,499,295**
	0	7,356,331	10,618,053	3,531,698	21,506,082
3. Mothproofers, incl. all fabric pests	+	**1,765,154**	**3,086,041**	+	**4,851,195**
	0	1,636,750	3,955,574	61,720	5,654,044
Coatings and/or Finishes					
4. All types (pigmented, metallic, clear plastic, protective, decorative)	+	**44,330,733**	**12,598,020**	**10,277,791**	**67,206,544**
	0	36,570,326	9,636,131	6,349,379	52,555,836
Household Products					
5. Room deodorants	+	**7,365,827**	**19,497,022**	**39,892,021**	**66,754,870**
	+	4,598,583	19,372,672	35,752,334	59,723,589
6. Snow all types	**0**	**5,246,843**	**2,091,778**	**614,129**	**7,952,750**
	0	4,197,129	4,040,643	721,409	8,959,181
7. Glass cleaners	**0**	**16,845,539**	**832,447**	+	**17,677,986**
	+	16,919,284	1,350,040	200,888	18,470,212
8. Shoe or leather dressings	+	+	**1,586,889**	**13,787,802**	**15,374,691**
	+	1,955,991	2,528,975	9,254,103	13,739,069
9. Waxes and polishes (household and automotive)	+	**12,518,980**	**22,573,424**	**5,111,661**	**40,204,065**
	+	7,209,699	*	4,633,739	11,843,438
10. Starches	**2,008,168**	**13,983,594**	**3,801,713**	+	**19,796,475**
			New category		
11. Other household products, all types (such as metal, oven, rug and upholstery cleaners; water repellents, etc.)	+	**3,388,303**	**4,592,782**	**1,071,875**	**9,052,960**
	+	4,292,153	19,895,384	410,372	24,597,909
Personal Products					
12. Shaving lather	+	**2,506,908**	**19,579,415**	**46,088,108**	**68,174,431**
	0	306,138	20,352,663	51,952,158	72,610,959
13. Hair sprays and dressings	**1,891,229**	**39,429,557**	**35,329,333**	**35,211,140**	**111,831,259**
	+	22,360,817	26,128,270	31,198,387	79,687,474
14. Dental cream	+	**0**	**2,784,968**	+	**2,784,968**
	0	++	++	11,241,523	11,241,523
15. Medicinals and pharmaceuticals (such as fungicides, burn treatments, topical antiseptics, oral medicinals, anesthetics, antibiotics)	**2,524,668**	**87,618**	**615,727**	**8,548,823**	**11,776,836**
	3,329,752	++	426,829	6,279,731	10,036,312
16. Colognes and perfumes					
(a) Over one ounce	**19,018,940**	**XXXXX**	**XXXXX**	**8,732,276**	**27,751,216**
	18,586,393	XXXXX	XXXXX	9,798,833	28,385,226
(b) One ounce and under	**4,896,015**	**XXXXX**	**XXXXX**	**6,373,287**	**11,269,302**
	2,211,201	XXXXX	XXXXX	3,481,034	5,692,235
17. Other personal products (such as shampoos, sun tan preparations, personal deodorants, sachets, hand lotions, powders, depilatoris, etc.)	+	+	**568,005**	**9,513,199**	**10,081,204**
	666,622	542,704	3,239,335	7,792,977	12,241,638
Miscellaneous					
18. Veterinarian and pet products (such as shampoos, deodorants, insecticides, etc.)	+	**346,229**	**3,623,896**	**740,811**	**4,710,936**
	0	286,749	2,727,994	1,098,282	4,113,025
19. De-Icers	+	**10,617,185**	**3,309,151**	**280,642**	**14,206,978**
			New category		
20. Miscellaneous products (such as mildew preventive, fire extinguishers, automotive, other than those reported under 4, 9, and 19, industrial lubricants, and any others	+	**5,436,155**	**6,769,432**	**2,514,251**	**14,719,838**
	0	6,167,350	10,062,705	1,783,457	18,013,512
+ Total of categories too revealing to be released	**12,562,655**	**1,431,490**	**0**	**4,172,251**	**18,166,396**
Total of glass categories unrevealed in 1959	466,031	—	—	—	466,031
Totals	**42,901,675**	**192,036,344**	**172,774,093**	**199,280,258**	**606,992,370**
	25,259,999	131,021,052	155,076,470	186,930,422	498,287,943

* Too revealing, included in 1959 total for "other household products."

\+ Too revealing to be released, included in total at bottom of table.

\+ + Included in 1959 total for "other personal products."

ials of the European Polish Industry," Dr. Sapper reported that self-polishing emulsion floor polishes are less popular in Europe than in the U. S. However, in Western Europe they are finding growing acceptance, while they are still "rather unpopular" in Eastern European countries.

Nonionic emulsions, frequently based on montan-derived ester waxes formulated with nonionic ethylene oxide type emulsifiers and additions of PVA and acrylic dispersions, play an important role in all countries where dry-bright emulsions are made, Dr. Sapper reported. Certain countries, notably Finland and France, use practically only nonionics.

Where anionics are used, they are formulated very differently from their American counterparts. Europeans look for high gloss and easy buffability in such films. Therefore, only small amounts of polymer dispersions are incorporated in these products.

Among solvent paste type waxes, semi-solid products packed in transparent PVC tubes are most popular in Germany and Austria, Dr. Sapper said. Liquid solvent based floor polishes are gaining popularity in some European countries at the expense of solid pastes.

In the field of shoe polishes a tendency to softer pastes was also noted, with water emulsion pastes in jars gaining over straight solvent based products, particularly in Sweden and Switzerland. Dry-bright emulsion shoe polishes are not very popular, according to Dr. Sapper. Car, furniture and metal polishes sales are small compared with floor and leather polishes. Aerosol polishes have found no more than limited application so far — mainly for shoes and furniture.

Dr. Sapper then gave a brief survey of the most important waxes, polymer dispersions, and solvents used by European polish formulators. This he followed with recipies for various products, giving in each instance a typical European and a corresponding American formula.

Dr. Sapper's talk was followed by a panel discussion on the safety of waxed floors at which Earl Brenn of Huntington Laboratories presided. First panelist, John D. Conner of Cummings, Sellers, Reeves & Conner, Washington, D. C., spoke on "The Legal Aspects of Liability Arising from the Use of Floor Wax." An owner has the right to wax, beautify and protect his floors, Mr. Conner stated. Waxing itself does not constitute negligence, leading to liability. However, the waxing may be done in such a manner that it does constitute negligence — or what is normally referred to as common law negligence, according to Mr. Conner.

Having defined negligence by quoting some pertinent court decisions, Mr. Conner reported that the practices most commonly found at fault include over-application, insufficient dryness of the floor film, application in unexpected or unsuitable areas. Choice of wax and mode of application have also been found at fault.

Mr. Conner stressed the highly technical nature of the question of "slipperiness" and called upon J. Vernon Steinle, S. C. Johnson & Son, Inc., Racine, Wis., to take the part of his "expert witness."

Speaking on "The Technical Aspects of Alleged Negligence from the Use of Floor Wax," Dr. Steinle first discussed the methods whereby slipperiness may be measured and correlation of these measurements with foot tests.

Dr. Steinle then categorized into four groups the factors which he believes to be important in the rate of accidents due to slipping or falling: Floor surface; the individual's shoes; method of walking; and mental condition of the individual. Each of these categories may be subdivided into three distinct factors, which Dr. Steinle explained in detail.

Certain practices likely to produce dangerously slippery conditions were listed by the speaker as well as methods whereby the wax consumer can avoid these practices and ensuing liability problems.

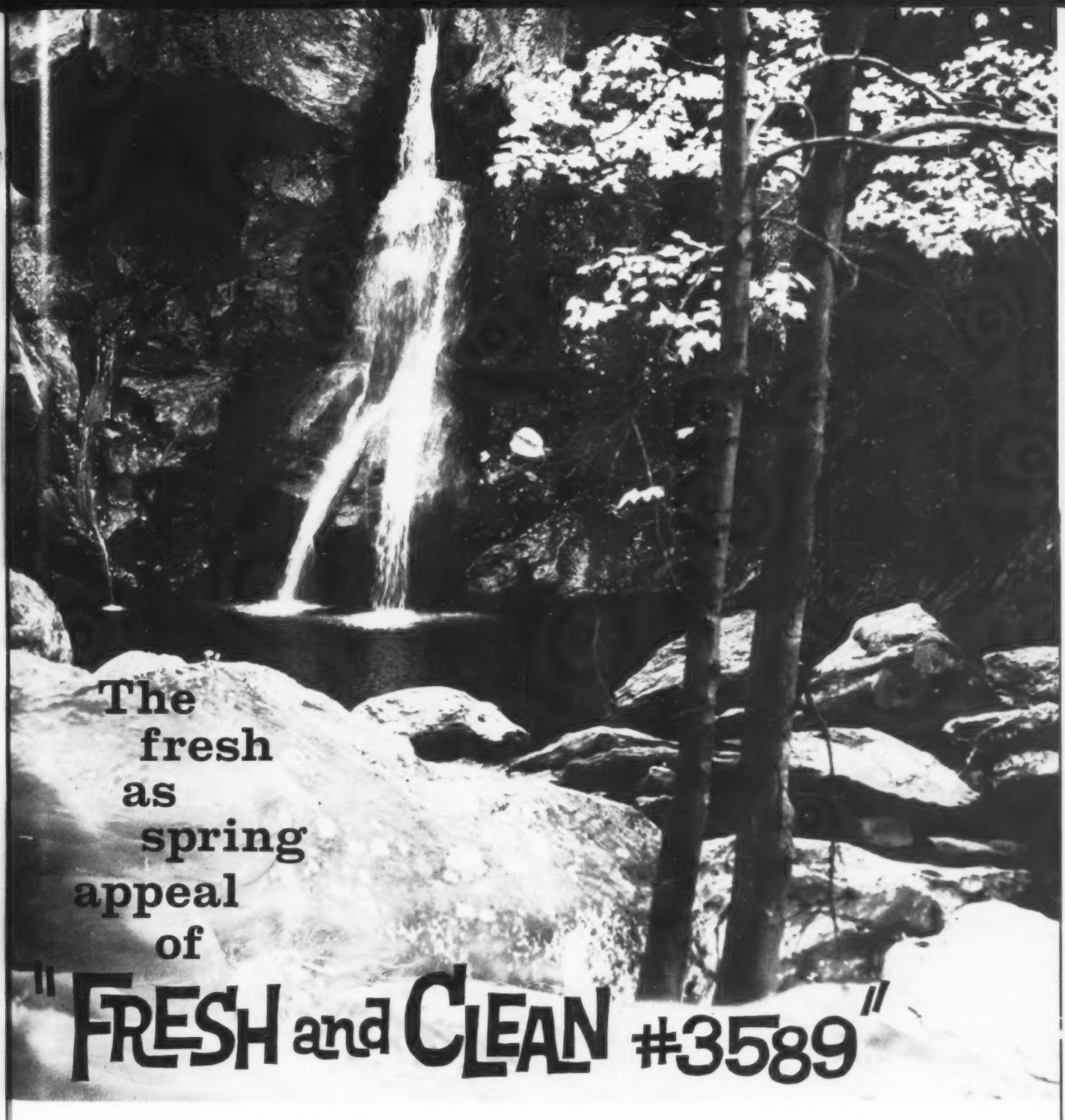
A check list of questions to be posed by the attorney to the expert witness, the defendant and the plaintiff was suggested by Dr. Steinle. Finally he discussed the attitude the manufacturer should take to alleged negligence charges due to use of his wax. He pointed to some ill guided advertising claims and expressed the conviction that the manufacturer should back a customer involved in a liability suit by supplying an expert technical witness. He emphasized that a salesman or other nontechnical employee should never be used as an expert witness. Manufacturers should encourage insurance companies to prosecute, Dr. Steinle said and supported this statement by detailing the form this encouragement should take. He concluded his paper by giving "pointers for the expert witness."

Aerosol—Insecticide Divisions

A SYMPOSIUM on aerosol insecticides took place at a joint morning session of the Aerosol and the Insecticide Divisions held May 16. A. C. Miller, Gulf Research and Development Co., Pittsburgh, was moderator at the symposium which consisted of five papers. John Odeneal of Fairfield Chemical Division, FMC, New York, spoke on "Space Formulations — Up to Date." His paper appears beginning on page 143.

Insecticides and their maximum allowable concentrations for use in residual insecticidal sprays were listed by J. E. Bussart of Velsicol Corp., Chicago, who presented a talk entitled "Residual Formula-

(*Turn to Page* 95)



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DUAL PURPOSE

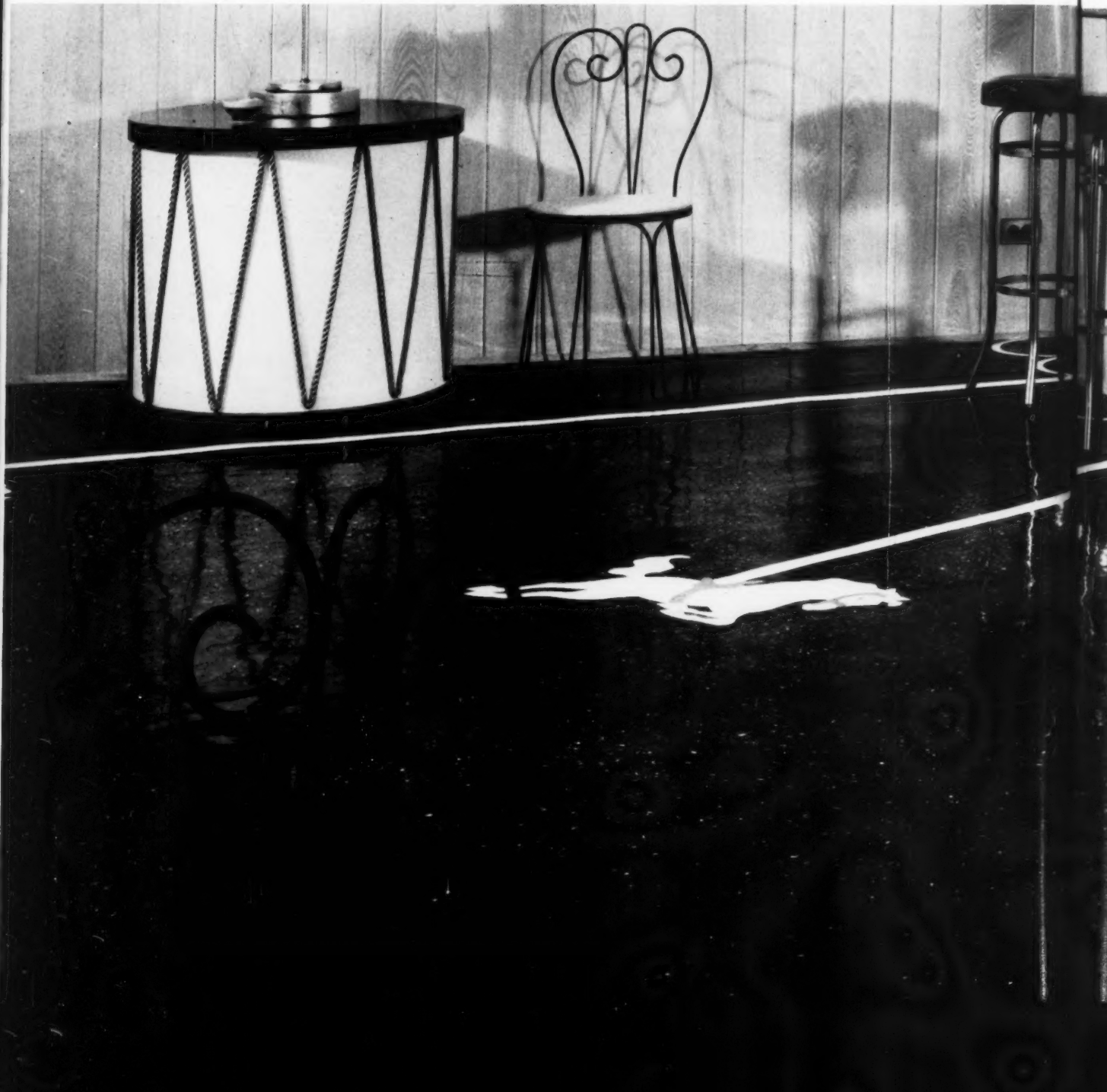
KP-140

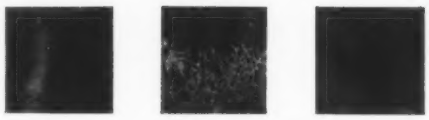
leveling agent–plasticizer
for floor polishes

Nothing can match KP-140 for leveling. It gives excellent leveling in floor polish formulations—and plasticizing action as well. Years of testing—in the laboratory, in commercial use, in the home—have proven these properties conclusively.

Emulsion polishes formulated with KP-140 level out evenly and dry as a smooth, continuous film. There are no high and low spots in gloss. As a leveling agent-plasticizer, KP-140 is particularly important in acrylic- and polystyrene-based formulations. KP-140 is a major factor in overcoming streaking, crazing, powdering, water spotting and contraction of films. It prevents "puddling" and promotes flow.

To order KP-140, contact your FMC distributor or call us directly at MU 7-7400, New York. We'll speed your request to the office nearest you. Write for data sheet, prices, and a list of representatives with warehouse stocks.





Two test strips on black rubber tile show "drawing in" and crazing in floor polish films which do not contain KP-140. Tile on right shows same formulation with KP-140 added.

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION
Chemicals and Plastics Division
161 East 42nd Street, New York 17, N. Y.

Proper leveling with KP-140 insures evenness of gloss. Photo courtesy of Robbins Floor Products Inc.

Fairfield Facts

CHEMICAL EDITION ★ ★ ★

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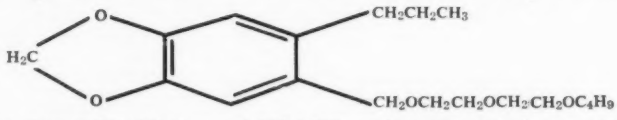
PIPERONYL BUTOXIDE

Technical Data

Physical and Chemical Properties



Spec. Grav at 20°/20° C.	1.040-1.070	Approx. wgt./gal.	8.79 lbs.
Propellent insolubles	None	Solubility in base oil	100%
Color G-H 1933	9.5	Flash Point °F.	310
Refractive Index at 25° C.	1.494-1.510	Water Content	0.05%

Soluble in most organic liquids including petroleum oils.

The active ingredient of piperonyl butoxide is 1-(2,5,8- trioxadodecyl)-3, 4-methylenedioxy-6-(n-propyl) benzene. For registration purposes, the Commercial product may be designed as consisting of at least 80% (Butyl carbityl) (6 propyl-piperonyl) ether and 20% of related compounds.

Piperonyl Butoxide protects pyrethrins as it synergizes. Piperonyl Butoxide reduces the effect of light, air and heat on pyrethrins and screens out ultraviolet light. As an acid acceptor it retards decomposition and polymerization.

SYNERGISM and effectivness of ratios of pyrethrins and piperonyl butoxide on houseflies (Compilations from probit-regression studies).

Equal cost, base oil dilutions	Avg. Knockdown (%)			24 Hr.
	3 min	5 min	10 min	KD Kill
Pyrenone KD Conc.	53	70	92	61
Pyrenone Roach Spray Con.	55	69	93	72
Pyrenone 20 New	61	80	94	76
Pyrenone O.T. 50-5	63	72	94	82

*Reg. U.S. Pat. Off., FMC

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Fairfield Chemicals

Sales Headquarters

441 LEXINGTON AVENUE, NEW YORK 17, N. Y.

Branches in principal cities. In Canada: Natural Products Corporation, Montreal and Toronto.

Toxicological Properties

Undiluted Piperonyl Butoxide-Acute oral
LD50 for rats 11,500 mg/kg.
Chronic oral
LD50 for rats 8,750 mg/kg.

Extensions have been granted for piperonyl butoxide as per Paragraph 121.87 Federal Register of February 27, 1960 which states:

"#121.87 Extension of effective date of status for certain specified food additives as indirect additives to food.

"On the basis of data supplied in accordance with #121.85 and findings that no undue risk to the public health is involved and that conditions exist that make necessary the prescribing of an additional period of time for obtaining tolerances or denials of tolerances or for granting exemptions from tolerances, the following additives may be used in connection with the production, packaging and storage of food products, under certain specified conditions, for a period of 1 year from March 6, 1960, or until regulations shall have been issued in accordance with section 409 of the act, whichever occurs first. The extensions are granted under the condition that a minimum quantity of the additive will be incorporated in the food, consistent with good manufacturing practice."

BIOLOGICAL PROPERTIES

Although not an insecticide in its own right, piperonyl butoxide synergizes pyrethrins, allethrin and rotenone to a marked degree enhancing both the knockdown and kill properties on most major flying and crawling insects.

Copies of the following booklets may be obtained from local Fairfield representatives or by writing to Fairfield Chemicals, Food Machinery and Chemical Corporation, 441 Lexington Avenue, New York 17, New York.

☐ Pyrenone* Condensed Facts Folder—Summary of Tolerances, Extensions. Free of charge.

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Aerosol Powder Formulations

By D. C. Geary* and R. D. West,
Union Carbide Chemicals Co.,
Tarrytown, N. Y.

Problems of agglomeration and caking in aerosol powders may be solved by proposed system for stabilizing propellant-powder suspensions having a high solids content

DISPENSING of powders in aerosol form offers numerous advantages. The mess and waste sometimes associated with conventional application may be eliminated and the unused powder is not subjected to atmospheric exposure. Pharmaceutical, household, cosmetic, agricultural and industrial powders are all candidates for pressure packaging.

Pressurized powders traditionally have been limited to a maximum of fifteen per cent by weight of powder unless the particle size is reduced to ten microns or less through the use of special techniques such as micronization. Formulations containing powders of larger particle size or a higher percentage of powder generally exhibited agglomeration, caking, valve clogging, or leakage.

Change from pressure packaging of liquids to pressure packaging of powders introduces two additional problems. The first—prevention of agglomeration and caking—is solved by stabilizing the suspension of powder in propellant. The second—valve clogging and leakage—can be solved by novel valves to replace the older models which were designed primarily for liquids.

We shall describe a system for stabilizing propellant powder suspensions of high solids content. A valve to accommodate such suspensions is being developed and will be discussed in another paper.

*Paper presented at 47th midyear meeting, Chemical Specialties Manufacturers Ass'n., Chicago, May 17.

Principle of the System

A given volume of any powder consists of two elements: the volume of the solid particles themselves and the interstitial, or void, volume between the particles. If the void volume is either filled with (or enlarged by) substances which prevent the particles from agglomerating, a stable suspension will be formed.

The void volume of any powder is the difference between total volume at atmospheric pressure and solid volume (the smallest volume which can be obtained under compression without deforming the particles). These values are readily calculated from the bulk density and the absolute density, which are available from the powder manufacturers.

Two classes of materials can be used to fill the void volumes: (1) bulking agents, which are themselves very finely divided powders, and (2) liquids, including propellants. The use of bulking agents to impart flow characteristics to powder is well known. To use them successfully one must establish the amount required to stabilize the suspension of powder.

To determine minimum requirements of bulking agents, we applied an "International" Model V centrifuge at 500 rpms. to produce a mildly accelerated settling test. Chlorhydrol provides an example of the type of data that can be obtained by this method and was chosen because earlier experience had shown it to present certain difficulties in pressure packaging. Various proportions of bulking agent, in this case "Santocel 54" (Monsanto), along with an excess of propellant, were added to Chlorhydrol in compatibility tubes and the tubes were thoroughly shaken. The volumes were recorded as shown in Table I. It can be seen that the volumes are additive. This implies that the

Table I. Effect of "Santocel 54" on a Fixed Volume of Chlorhydrol

Volume of Chlorhydrol cc.	Volume of Santocel 54 cc.	Volume of Powder Mixture Calculated, cc.	Volume of Powder Mixture Experimental, cc.
15	2.5	17.5	17.5
15	4.9	19.9	19.9
15	7.4	22.4	22.4
15	9.8	24.8	24.8
15	12.2	27.2	27.2
15	14.6	29.6	29.6
15	17.1	32.1	32.1
15	19.5	34.5	34.5

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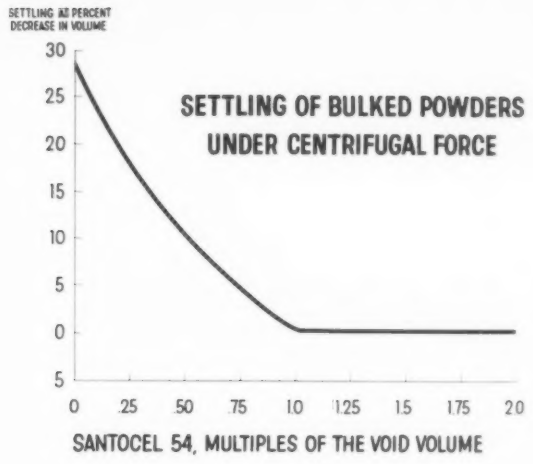
particles of bulking agent are not merely filling in the void space of the active powder, but are actually separating the particles from each other. Thus, the void volumes must also be additive.

Immediately after being shaken and for a short period thereafter, the powder remained suspended. Within seventy-two hours, the powders settled to their bulk volume. At the end of this time, each of the tubes was centrifuged for two minutes at five hundred rpms. and the tubes were allowed to stand for an additional seventy-two hours. No further settling took place and the powder levels were observed and recorded.

Settling as expressed by the per cent decrease in volume is shown in Figure 1. It can be seen that, when the volume of "Santocel 54" was less than the void volume of the Chlorhydrol, there was a large decrease in the total powder volume. When the ratio was 1:1 or greater there was no change in volume.

Figure 1.



Thus, minimum settling is obtained when the amount of bulking agent is at least equal to the void volume of the active powder.

These findings can be expressed as follows:

For any powder:

$$Vt = Vs + Vv \quad \text{or} \quad Vv = Vt - Vs \qquad (1)$$

where:

Vt = Total volume at atmospheric pressure

Vs = Solid particle volume

Vv = Void volume between particles

If subscripts 1 and 2 refer to active powder and bulking agent, respectively, and if, as just shown, the void volumes are additive, we get the following equation:

$$\Sigma Vv = Vv_1 + Vv_2 \qquad (2)$$

From (1):

$$Vv_2 = Vt_2 - Vs_2 \qquad (3)$$

Substituting in (2):

$$\Sigma Vv = Vv_1 + (Vt_2 - Vs_2) \qquad (4)$$

This gives a relationship for the total void volume of the powder mixture. An amount of liquid must now be added equivalent to the total void volume (ΣVv). It has been found that, in addition to the propellant (A), small amounts of oil (B) and a surfactant (C) are necessary to facilitate the flow of suspended particles through an aerosol valve. The total volume of liquid components can be expressed as:

$$A + B + C = k \Sigma Vv = k [Vv_1 + (Vt_2 - Vs_2)] \qquad (5)$$

where: A, B and C represent the volumes of propellant, oil and surfactant respectively, and:

k = 1 or slightly more than 1

The volume contributed by solid particles of bulking agent (Vs_2) will usually be small in relation to Vt_2 since a bulking agent consists mostly of void space. In addition, it has been shown that minimum settling occurred when the volume of bulking agent was equal to the void volume of the active powder, or:

$$Vt_2 = Vv_1 \qquad (6)$$

Therefore, neglecting Vs_2 because it is small, and substituting equation (6) in (5) we have:

$$A + B + C = k [Vv_1 + Vt_2] = k' Vv_1 \qquad (7)$$

where:

k = 1 and k′ = 2

It is essential that k′ = 2 be maintained as close as possible. If k′ <2, thixotropic masses will be formed which will be unmanageable, and if k′ >>2, excess liquid is present, in which case, on initial actuation, the first material to be ejected will be only liquid.

Equation (7) applies to any powder, provided it requires a bulking agent. If a powder has a bulk density of twelve pounds per cubic foot or less, it may serve as its own bulking agent. In such cases, simply drop the Vt_2 term from equation (5).

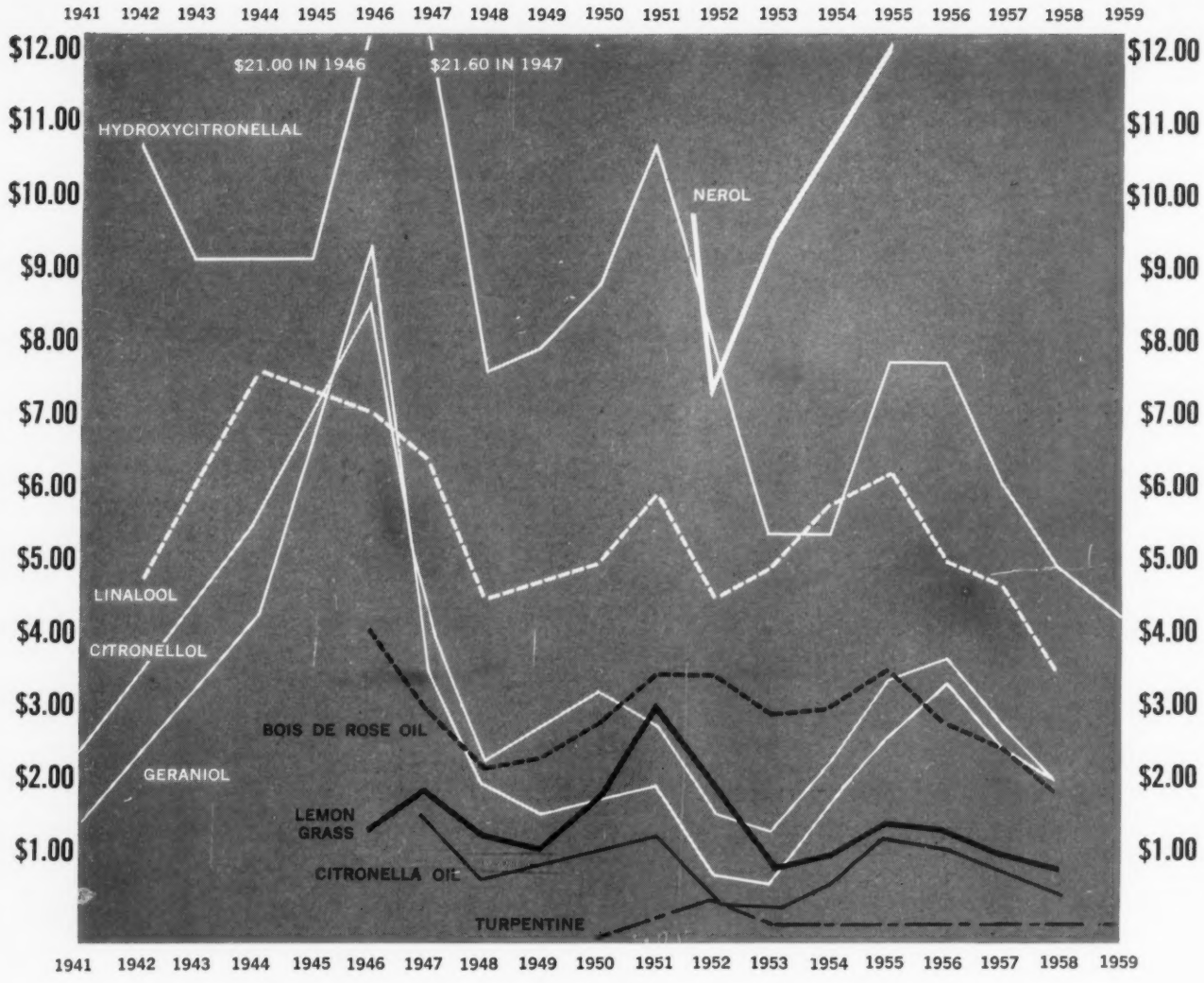
Solid Components

A. Powders

Any powder may be suspended and dispersed, provided it is insoluble in the liquid components of the aerosol formulation. A knowledge of the size and shape of the particles is not required to use equation (7). Differences of particle size and shape are reflected by the absolute and bulk densities, as discussed below.

B. Bulking Agent

Any powder having a bulk density below about twelve pounds per cubic foot may be used as bulking agent, provided it is insoluble in the liquid components. Powders with a bulk density of one to four pounds per cubic foot are preferred, such as "Santocel 54," because a smaller weight of bulking agent is required to equal the void volume of the active powder. Powders may be self bulked if a portion of the active powder is reduced to a sufficiently low bulk density. Also, a portion of the bulking agent



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requirement may be reduced if one or more of the active powders, such as hexachlorophene, are capable of acting as a bulking agent.

Liquid Components

The total volume of propellant (A), inert liquid (B) surfactant (C) must be approximately equal to the total void volume (Σ Vv). However, in addition to satisfying the total amount of liquid required to obtain fluidity, a minimum amount of inert liquid and surfactant must be present to dispense the powder mixture in a satisfactory manner. Of the total liquid volume, it has been found that 5.8 per cent should be inert liquid and 2.2 per cent should be surfactant. Larger proportions may be necessary to obtain specific properties in the ejected product.

A. Propellant

Any liquified propellant (or combinations thereof) with sufficient pressure to dispense the powder mixture can be used. Care should be exercised in selecting the propellant, since it governs the temperature, drying time and delivery rate of the dispensed product.

When substituting one propellant for another, equal volumes should be used. However, because of differences in density, a different weight of propellant might be needed to satisfy the minimum propellant requirements.

B. Inert Liquids

Inert liquids, such as mineral oils and fatty acid esters, that are miscible with the propellant and surfactant help prevent agglomeration, possibly by functioning as dielectrics and thus help to stabilize the suspension. In addition, they lubricate the powder particles and the valve and control the appearance of the product after ejection and reduce "dusting".

Inert liquids with specific gravities of less than 0.9 at 60° C. and Saybolt viscosities of less than ninety at 100° F. are preferred.

C. Surfactants

The presence of a surfactant to aid the oil in coating the powder particles has been found to be essential. Water soluble surfactants may be added to obtain rinsability of the ejected product if desired.

How to Apply

To use the powder system, one must first calculate void volume of the active powder. This value can be obtained from density data as shown below:

From equation (1):

$$VV_1 = Vt_1 - Vs_1 \qquad (8)$$

and by definition:

$$Vt_1 = \frac{w_1}{BD_1} \qquad (9)$$

where:

Vt_1 = Total volume of active powder at atmospheric pressure

w_1 = Weight of active powder

BD_1 = Bulk density of active powder at atmospheric pressure

and:

$$Vs_1 = \frac{w_1}{AD_1} \qquad (10)$$

where:

Vs_1 = Volume of solid particles of active powder

AD_1 = Absolute density of active powder at the yield point

Substituting these relationships in (8):

$$Vv_1 = \frac{w_1}{BD_1} - \frac{w_1}{AD_1} \qquad (11)$$

From equation (6) the volume of bulking agent (Vt_2) to be added must equal (Vv_1). The volume of liquid components is then determined from equation (7).

The volumes of bulking agent and liquid components can then be converted to a weight basis using appropriate densities.

The bulk and absolute densities are customarily expressed in pounds per cubic foot. Both densities are available from the powder manufacturers or may be determined experimentally. Determination of the bulk density by the "tap method" is preferred. The absolute density can be obtained by measuring the volume of the powder at the "yield point."*

The following example illustrates how the relationships discussed above can be used to derive a formulation for packaging one hundred pounds of a hypothetical active powder.

1. Assume the following information is obtained from the supplier:
   - Active powder bulk density — 30 lbs. per ft.^{3}
   - Active powder absolute density — 77 lbs. per ft.^{3}
   - Bulking agent bulk density — 3.8 lbs. per ft.^{3}
2. From equation (11) calculate the void volume:

$$Vv_1 = \frac{w_1}{BD_1} - \frac{w_1}{AD_1} = \frac{100}{30} - \frac{100}{77} = 2.03 \text{ ft.}^3$$

3. From equation (6) an amount of bulking agent equivalent to the void volume (i.e., 2.03 cubic feet) is required. Convert to a weight basis from the bulk density:

$$w_2 = Vt_2 \times BD_2 = 2.03 \times 3.8 = 7.71 \text{ lbs.}$$

4. From equation (7), calculate the volume of (A), (B) and (C) required:

$$A + B + C = k' \, Vv_1 = 2 \times 2.03 = 4.06 \text{ ft.}^3$$

   $B = 5.8\%$ of $(A + B + C) = 0.58 \times 4.06 = 0.25$ ft.^{3}

   $C = 2.2\%$ of $(A + B + C) = 0.22 \times 4.06 = 0.09$ ft.^{3}

   $A = 92\%$ of $(A + B + C) = .92 \times 4.06 = 3.74$ ft.^{3}

5. Convert to a weight basis from the respective densities:

   A = 87.65 lbs. per ft.^{3} for propellant

   B = 53.40 lbs. per ft.^{3} for inert liquid

   C = 59.30 lbs. per ft.^{3} for surfactant

   therefore:

   A = 327.5 lbs.

   B = 12.5 lbs.

   C = 5.5 lbs.

The components can then be calculated on a total formulation basis as follows:

Powder Formulation

Material	Pounds	Per Cent Weight
Active powder	100.0	22.1
Bulking agent	7.7	1.7
Propellant	327.5	72.1
Inert liquid	12.5	2.8
Surfactant	5.5	1.2
	453.2	100.0

Use of the relationships discussed above allows the formulator to incorporate a maximum amount of active powder. For amounts be-

(*Turn to Page* 91)

*The yield point may be calculated by the "offset method." See Popov, E. P.: "Mechanics of Materials," p. 30-31; Prentice Hall Publishing Co.

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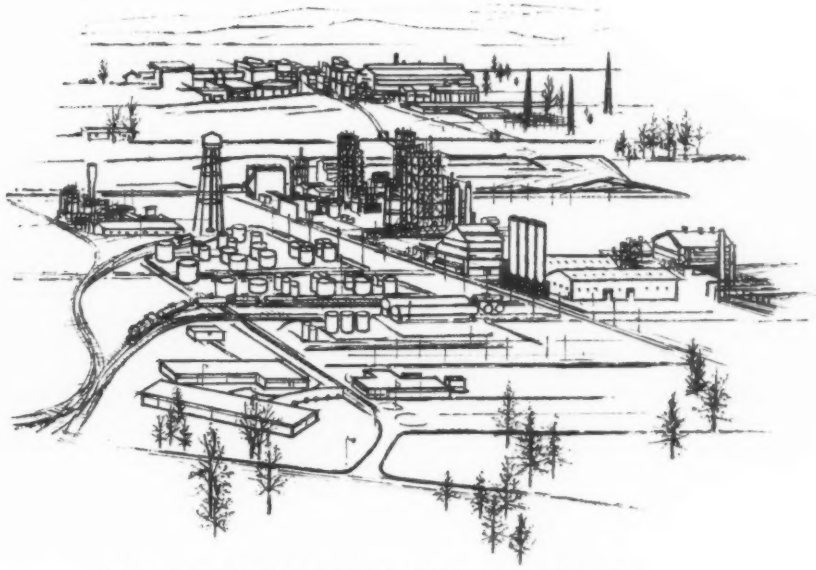

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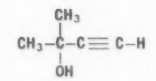
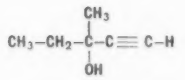
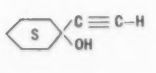
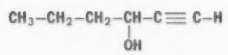
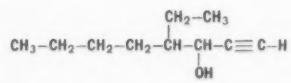
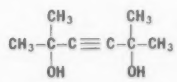
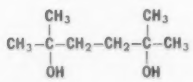
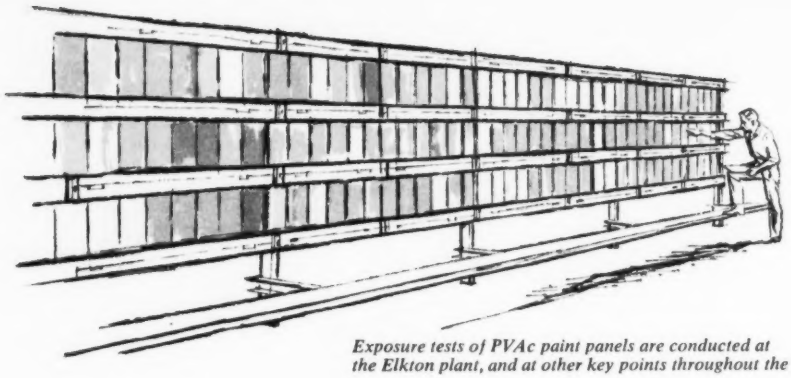
Available in commercial quantities, these specialty chemicals are produced by continuous process at Calvert City, and at Bound Brook. They are useful starting points for chemical syntheses.

products	structural formula	boiling point °C, 760 mm	melting point °C	solubility in H_2O wt. % at 20°C	applications
METHYL BUTYNOL		103.6	2.6	miscible	Stabilizers in chlorinated solvents. Viscosity reducers and stabilizers. Electroplating brighteners. Intermediate in synthesis of hypnotics and isoprenoid chemicals such as Vitamin A, ionone and perfume alcohols. Solvents for alcohol-soluble nylon and polyamide resins.
METHYL PENTYNOL		121.4	−30.6	9.9	
ETHYNYL CYCLOHEXANOL		180	30-31	1.2	Corrosion inhibitor for mineral acids. Stabilizer in chlorinated organics. Synthesis of hypnotics, other pharmaceuticals and perfumery materials.
HEXYNOL		142	−80	3.8	Corrosion inhibitor for mineral acids; high temperature oil well acidizing inhibitor.
ETHYL OCTYNOL		197.2	−45	<0.1	Acid inhibitor for mild steel, acid pickling and cleaning baths, electrolytic cleaning baths, electrolytic refining of metals, acidizing of oil wells.
DIMETHYL HEXYNEDIOL		205-6	94-95	27.0	Component in wire drawing lubricant formulations. Coupling agent in resin coatings. Organic synthesis.
DIMETHYL HEXANEDIOL		214-15	87.5-89	14.3	Synthesis of peroxide catalysts and cross-linkers, cyclic musk compounds and allethrin.

Alkyl Acetylenes

Available in drum quantities from Bound Brook, New Jersey.

products	boiling point °C, 760 mm	melting point °C	specific gravity	applications
METHYL ACETYLENE (Propyne)	−23.1	−101.5	0.660 (−13/4°C)	Synthesis of pharmaceuticals and aromatics; special fuel additives.
ETHYL ACETYLENE (1-Butyne)	8.3	−122.5	0.669 (0/0°C)	



Exposure tests of PVAc paint panels are conducted at the Elkton plant, and at other key points throughout the U.S.

Technical service

Airco's technical service laboratories, at Bound Brook, New Jersey, and Cleveland, Ohio, are equipped to assist customers on a wide range of applications problems. A technical service staff, composed of specialists on applications for specific industries, is available to discuss production processes and formulations with customers, and to set up laboratory studies related to customer problems. Special facilities for the study of resins for the paper industry are part of the Bound Brook Development Laboratory. Also at Bound Brook are facilities for the study of organic chemicals, polyvinyl alcohol adhesives, and tailored polymers. Studies on paint vehicles and formulations are conducted at the Cleveland Development Laboratory. Studies on adhesives also are conducted at the Cleveland Development Laboratory.

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Cleveland, Ohio—1747 Chester Avenue, Cleveland (14)—MAin 1-3060
Houston, Texas—3603 Cherry Street, Houston (26)—CApital 8-9353
Los Angeles, California—17800 East Valley Road, City of Industry—YOrktown 4-3451
New York, New York—150 East 42nd Street, New York (17)—MUrray Hill 2-6700
New Jersey—Clermont Terrace, Union—ELizabeth 4-1212
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Calvert City, Kentucky—Ivanhoe, Virginia—Keokuk, Iowa—Louisville, Kentucky.

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Catamenial Napkin Powder

Material	Per Cent Weight	Supplier	Code
Italian talc	29.37	Hammill & Gillespie, Inc.	Active powder
"Santocel 54"	1.20	Monsanto Chemical Co.	Bulking agent
Hexachlorophene	0.20	Sindar Corp.	Bulking agent
R-45 Oil	2.40	Sonneborn Chemical & Refining Corp.	Inert liquid (B)
"Span 85"	0.70	Atlas Powder Co.	Surfactant (C)
"Tween 80"	0.39	Atlas Powder Co.	Surfactant (C)
"Ucon" propellant 12/11 50/50	65.74	Union Carbide Chemicals Co.	Propellant (A)
	100.00		

Foot Powder

Material	Per Cent Weight	Supplier	Code
Italian talc	32.96	Hammill & Gillespie, Inc.	Active powder
"Santocel 54"	0.69	Monsanto Chemical Co.	Bulking agent
Zinc Stearate	0.66	Fisher Scientific Co.	Bulking agent
Dichlorophene	0.26	Sindar Corp.	Bulking agent
"Klearol"	2.33	Sonneborn Chemical & Refining Corp.	Inert liquid (B)
"Span 85"	1.01	Atlas Powder Co.	Surfactant (C)
"Ucon" propellant 12/11 50/50	62.09	Union Carbide Chemicals Co.	Propellant (A)
	100.00		

Insecticidal Powder

Material	Per Cent Weight	Supplier	Code
"Sevin" (technical grade) 50 Microns	22.48	Agricultural Chemicals Division, Union Carbide Chemicals Co.	Active powder
"Santocel 54"	1.73	Monsanto Chemical Co.	Bulking agent
"Blandol"	5.65	Sonneborn Chemical & Refining Corp.	Inert liquid (B)
"Span 85"	1.34	Atlas Powder Co.	Surfactant (C)
"Ucon" propellant 12/11 50/50	68.80	Union Carbide Chemicals Co.	Propellant (A)
	100.00		

Body Powder

Material	Per Cent Weight	Supplier	Code
Italian talc	33.04	Hammill & Gillespie, Inc.	Active powder
"Santocel 54"	1.01	Monsanto Chemical Co.	Bulking agent
Hexachlorophene	0.26	Sindar Corp.	Bulking agent
"Carnation" oil	2.14	Sonneborn Chemical & Refining Corp.	Inert liquid (B)
"Span 85"	0.86	Atlas Powder Co.	Surfactant (C)
"Ucon" propellant 12/11 50/50	62.69	Union Carbide Chemicals Co.	Propellant (A)
	100.00		

(*From Page 83*)

low the maximum, excess bulking agent is added and the liquid volume adjusted accordingly (equation 7).

The formulations on this page are examples of powders that may be packaged in aerosol form.■

Toothpowder

Material	Per Cent Weight	Supplier	Code
Dicalcium phosphate anhydrous	2.93	Victor Chemical Co.	Active powder
Dicalcium phosphate dihydrate	26.34	Victor Chemical Co.	Active powder
"Santocel 54"	1.54	Monsanto Chemical Co.	Bulking agent
"Klearol"	2.43	Sonneborn Chemical & Refining Corp.	Inert liquid (B)
"Span 85"	0.69	Atlas Powder Co.	Surfactant (C)
"Tween 80"	0.39	Atlas Powder Co.	Surfactant (C)
"Ucon" propellant 12/11 50/50	65.68	Union Carbide Chemicals Co.	Propellant (A)
	100.00		

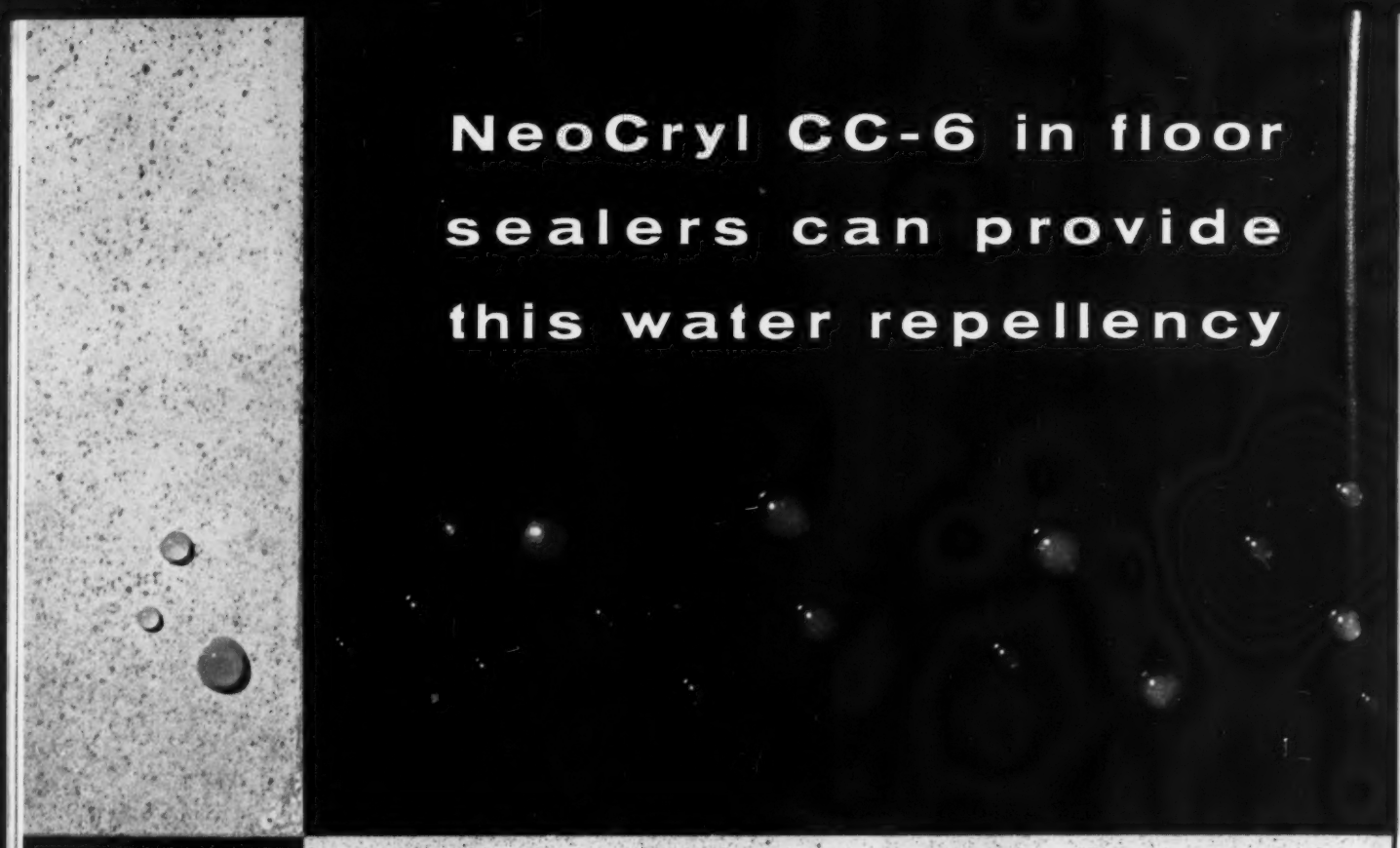
AOCS Session

(*From Page 49*)

automatic in that when required by the sample, attenuation is furnished by the recorder without manual attention. This instrument accessory is not available commercially. It was described essentially as a solenoid operated time switch which varies the potential to the recording equipment in even steps through a series of resistors. By programming the device the chart reading may be increased or decreased by known ratios when a certain section of the curve is being traced.

The samples are prepared by refluxing the soap with a methanolic solution of boron trifluoride and separating the esters so formed. It is not necessary to split the fatty acids prior to esterification. The methyl esters of the soap stock are separated and then identified by standard gas-liquid chromatographic procedures. Comparison of the resulting chromatograms with standard chromatograms similarly prepared from known soap stocks allows an estimate of the type and quantity of the original fats present in an unknown sample. Particular care is taken in this determination, to watch the relative amounts of such minor components as myristoleic and palmitoleic acid.

A. J. Stirton, R. G. Bistline, Jr., J. K. Weil and Waldo C. Ault, Eastern Utilization Research and Development Division, U.S.D.A.,



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Raw Materials for Specialty Chemical Processors

POLYVINYL CHEMICALS, INC.

26-27 PEABODY, STREET, HOWLEY MASSACHUSETTS

Philadelphia presented a paper entitled "Sodium Alkyl α-Sulfopelargonates, $C_7H_{15}CH(SO_3Na)CO_2R$. Wetting and Related Properties."

Pelargonic acid was sulfonated in the α-position by means of sulfur trioxide and the product was isolated as the monosodium salt $C_7H_{15}CH(SO_3Na)CO_2H$. Esterification with a series of alcohols of from 2 to 12 carbon atoms (normal and branched chain primary and secondary alcohols and $H(CF_2CF_2)_3CH_2OH$) was accomplished with sulfuric acid as the catalyst and with toluene to remove water of esterification azeotropically. The esters were examined for wetting, foaming and detergent properties.

Excellent wetting properties were shown by the esters of hexyl, heptyl, octyl, capryl and 2-ethylhexyl alcohol.

The most efficient wetting agents, with the hydrophilic portion at about the middle of the hydrophobic chain, are also characterized by relatively low surface and interfacial tension, a critical micelle concentration of 2-7 millimoles per liter, and very good foaming properties in soft and hard water.

Detergency, measured by washing standard soiled cotton in distilled water solutions at 60°C., was about equal to that for sodium dodecyl sulfate.

A paper on the "Oxyethylation of 9,10-Octadecanediols and 9,10 - Dihydroxystearonitrile: Nonionic Soaps" by A. N. Wrigley, F. D. Smith, and A. J. Stirton of the same laboratory, was presented by Dr. Wrigley.

The alkali-catalyzed reaction of ethylene oxide with the *meso* and *dl* forms of 9,10-octadecanediol (from pelargonic acid) and with *threo*-9, 10 - dihydroxystearonitrile was carried out in an apparatus equipped with automatic controls for temperature and pressure.

The earlier consumption found for the *dl* form compared to the *meso* may be attributed to intramolecular hydrogen bonding. The data obtained permitted calculation of a characteristic constant for the distribution of products. The reaction was stopped at selected values of n (the number of oxyethyl groups introduced) and the products were examined for surface active and related properties. A low value of n (n=4) was the optimum for emulsifying properties.

The oxyethylated nitriles were hydrolyzed to the corresponding "nonionic soaps" which were found to have typical nonionic characteristics. Unlike soap they were not easily precipitated by hard water or various metal ions.

TGA Scientific Section Meets

MAY 11, the final day of the Toilet Goods Association's annual meeting, was devoted to the Scientific Section's technical program and the presentation of the annual CIBS (Cosmetic Industry Buyers' and Suppliers' Association) award. Given annually to the authors of the most meritorious paper delivered before the Scientific Section during the preceding year, the 1961 award was presented to Martin M. Rieger, director of cosmetic development, and Stanley Brechner, senior chemist, both of Warner-Lambert Pharmaceutical Co., Morris Plains, N. J. The presentation was made at luncheon by CIBS president Robert C. Ring, sales manager of Duvcen Soap Corp., Long Island City, N. Y. Title of the prize winning paper was "Studies on the Adsorption of a Simple Dyestuff by Hair."

Jean Despres of Coty, Inc., New York, president of TGA, introduced Mr. Ring and welcomed members of the Scientific Section. He remarked that the section's meeting had commanded a far greater attendance than any other part of the convention.

The technical meeting, under the chairmanship of Herbert Heinrich, Coty, Inc., heard eight papers. A contribution on "The Correlation between Animal Tests and Human Tests in Assessing Product Mildness," by J. D. Justice, J. J. Traver, and L. J. Vinson of Lever Brothers Co., New York, was presented by Dr. Justice. Relative mildness of soap and synthetic detergent products was compared on human and animal skins. An arm immersion test and an overnight patch test were employed on human subjects. Swiss albino mice were used in a repeat animal patch test. Rats and rabbits were used in other types of experiments.

Results obtained in experiments on humans and on laboratory animals showed fairly good correlation. "Animal screening tests can serve as useful guides in developing products intended for human use," the authors report. This paper will be published in full in a future issue of *Soap and Chemical Specialties*.

Phyllis Carter and H. Mack Truax of Atlas Powder Co., Wilmington, Del., presented "A Study of Aerosol Shaving Cream Using Statistical Experimental Design." This contribution will also appear in a future issue of *Soap and Chemical Specialties*. The authors read their paper *a duo*, i.e. they took turns, each reporting the work for which he or she was primarily responsible.

Attempts to evaluate the "moisturizing" effect of various topical cosmetics upon the skin were described by Dr. Peter Flesch, University of Pennsylvania Medical School, Philadelphia. Reporting "In Vitro Studies on Water Diffusion and Uptake of Human Skin" Dr. Flesch said that water retention by the skin surface is determined by two factors: 1. Outward diffusion of water through the skin; 2. penetration of water or water vapor into the horny layer.

Tests, described in detail by the speaker, showed that glycerine decreased the diffusion of water through excised human or animal skin. When mixed with pulverized

(*Turn to Page* 199)

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CSMA Meeting

(*From Page 74*)

tions — Up to Date."

Propellant 12 alone or with propellant 11, and additions of hydrocarbons such as propane are used as propellants in residual sprays.

Residual sprays must leave a deposit on treated surfaces to give effective control. Labels should give specific information on use against each insect pest which the product is claimed to control, Mr. Bussart said. Information on the need for repeated applications should be included. The speaker stressed the need for precautionary statements on labels.

Control of common household insect pests and most plant pests can be achieved with modern house and garden insecticides, according to E. F. Mace of S. C. Johnson & Son, Inc., Racine, Wis. Mr. Mace's subject was "House and Garden Insecticides — Up to Date." The most important aspect of such formulations is the use of a solvent or carrier which is non-phytotoxic. The formulation must be designed to produce a dual purpose product — a quality space spray and a quality plant spray — Mr. Mace pointed out.

Greatest problem encountered in marketing these products is the consumer's tendency to use the aerosol and read directions later, according to the speaker. Plant damage is apt to result from this practice which leads to misapplication of the spray. Major factor in plant damage appears to be caused by sharp temperature changes produced by excessive spraying at close range, according to Mr. Mace.

A new one-shot liquefied gas propelled aerosol using a break-off tip nozzle in conjunction with a capillary eduction tube was described in a contribution by A. H. Yeomans and R. A. Fulton of the Entomology Research Division, A.R.S., U. S. Department of Agriculture, Beltsville, Md. Entitled "New Methods of Aerosol Application," the paper was delivered by A. H. Yeomans. The nozzle has no function in atomizing the spray. However, the capillary siphon tube features a ratio of inside diameter to length, which produces boiling and thus atomizes container contents into particles in the aerosol range.

Special feature of this arrangement is the ease with which it can be adapted to long range or remote control application of toxic materials. A one shot 10 cc. aerosol equipped with this type of dispensing mechanism has been used successfully for the treatment of small airplanes, the speaker reported. Larger units of this type are suitable for use in warehouses and food processing plants.

Metering type valves are most suitable for volatile formulations such as perfumes or deodorants, the speaker stated. For use with disinfectants, deodorants, and insecticides they have been used with timer-activated mechanisms. A new device has been developed for the operation of standard valves at regular time intervals, which will also keep such valves open for any predetermined time, according to Mr. Yeomans.

The mechanical break-up or whirl plate type of valve tip is most suitable for residual applications where spraying distance is 12 inches or less, the authors find. For greater distances the regular valves are best, Mr. Yeomans said. Each product should be tested for deposit efficiency and adjustments made to obtain at least 70 per cent deposit at the designated spraying distance.

Final paper of the symposium, "Propellants Up to Date," by Robert J. Peterson of Peterson Filling & Packaging Co., Danville, Ill., appeared in the May issue of *Soap and Chemical Specialties*.

Disinfectants and Sanitizers

THE cost of testing a product for the American Hotel Association certification program varies from $30 for a furniture polish to $125 for a carpet cleaner, according to A. G. Bowers, Pioneer Manufacturing Co., Cleveland. First speaker on the technical program of the Disinfectant and Sanitizers Division, Tuesday morning, May 16, Mr. Bowers spoke on "Certified Products Lists Can Be Costly to You." He pointed out that "To have just one product approved in each category of strictly chemical specialties costs well over $1,000 a year."

Giving further details on various major certification programs and their costs to the formulator, Mr. Bowers stated "to this add about a dozen local or less limited lists, and finally, the cost of State and Federal registration of disinfectants and insecticides. A real chemical specialty manufacturer can have a $15,000 bill before he sells an item."

Denying the need for product certification, the speaker reminded his audience that "Specifications tend to be a minimum goal to shoot at," and that they frequently do not keep abreast of new developments.

Mr. Bowers' talk was followed by a symposium on environmental control of microorganisms which consisted of four contributions. Arnold Lada, Onyx Chemical Corp., Jersey City, N. J., was moderator. Lawrence B. Hall, U.S. Public Health Service, Savannah, Ga., read a paper on "Germicides as Factors in the Epidemiology of Hospital Infections."

Reporting "Observations on the Microbiology of the Hospital Environment," V. W. Greene, University of Minnesota, Minneapolis, pointed up the complexity of the problem. "Traffic, ventilation, cer-

tain housekeeping activities, a variety of nursing and medical practices, and some architectural features combine to determine the magnitude and nature of environmental microbial contamination, Mr. Greene said.

No one single control measure, such as environmental sanitation or air filtration is sufficient by itself to eliminate high bacterial counts in air or on fomites. However, combined enforcement of a variety of control measures can provide a sanitary environment, the speaker said.

Studies in two hospitals revealed wide variations of bacterial count in one hospital, depending on the area studied and activities taking place, according to Mr. Greene.

In addition to variations in numbers of microorganisms encountered in the hospital, it was found that the types of organisms isolated from air and fomites also varied from area to area and from one sampling period to the next. Over 6,000 isolates were characterized in this study. In general, the gram positive cocci were the most numerous (19%) followed by molds (19%), gram positive sporeformers (15%) and gram negative rods (12%). Of the gram positive cocci, however, the majority (60-90 %) were non-hemolytic strains normally associated with healthy human skin. Of interest in this study was the discovery that approximately 13% of airborne bacteria isolated from the hospital were penicillin resistant, whereas less than 5% of non-hospital types fell into that category.

Further work in this field is being carried on, with specific reference to bacterial contamination of the hospital environment that can be attributed to solid waste handling and disposal practices.

Virus inhibiting properties have been established in quaternary ammonium compounds, iodine, chlorine, phenol, formalin, quinone compounds, tannic acid, ethylene oxide, glyoxals, benzimidazole derivatives and organic acids. In an evaluation of the "Current Status of Virus Inhibition" Henry J. Wisniewski of the Virus Laboratory of Milwaukee Health Department reported that virucidal screening studies had shown these agents to have virucidal properties, but that little effort had so far been made to utilize this information.

Changes in virus diseases and advances in diagnosis were described by the speaker, who stressed the growing incidence of respiratory virus diseases. Techniques for viral studies and some measures for dealing with viral infections were covered.

Last contribution to the symposium was a report on "Enforcement Activities with Hospital Germicides Under the Federal Insecticide, Fungicide, and Rodenticide Act," by L. S. Stuart and L. F. Ortenzio, Pesticide Regulation Branch, A. R. S., U. S. Department of Agriculture, Washington, D. C.

Compliance with legal requirements by manufacturers of germicides, disinfectants, and bacteriostats intended for hospital use leaves something to be desired, according to Dr. Stuart, who presented the paper. A marked increase has been observed in the number of products carrying label claims aimed at the programs engendered by the hospital staphylococcus problem, the speaker pointed out. "There is a real need for the establishment or enforcement by official medical and professional hospital groups of some minimum performance requirements for germicides and disinfectants recommended for application within the various routines considered important to the hospital sanitation program," Dr. Stuart said.

He presented an analysis of the market and emphasized the difficulties engendered by the fact that "a rather large number of companies (is) shipping to a small number of outlets within a market of a very large number of outlets covering a wide area." Under such circumstances control and enforcement by regulatory agencies is not easy, the speaker stated.

Sales of products should be slanted to a certain application within the hospital's sanitation program and claims and instructions on the label should be written with this point in mind, the authors point out. Misapplication of misleadingly labeled products may have serious consequences in the hospital. Manufacturers have a great actual and potential interest in this market but must also be conscious of their responsibilities, the paper indicates.

Automotive—Detergent Session

CHEMICAL specialties in the aero-space industry were the subject of a symposium held jointly the afternoon, May 16, by the Automotive Division and the Detergent and Cleaning Compounds Division. In an introductory talk, W. S. Jessop, U. S. Sanitary Specialties Corp., Chicago, reported that "Out of a minimum of 300 businesses concerned in providing chemical specialties for aero-space, 50 at least are members of CSMA." These figures resulted from a study conducted by Mr. Jessop and C. E. Allderdice, Bell Co., Chicago.

Four main categories of chemical specialties were investigated by this two man committee, Mr. Jessop said: Chemical specialties used for propulsion; for mechanical efficiency (synthetic lubricants, coolants, hydraulic fluids); for protection of the vehicle and/or its components in space (deicers, coatings, sealants, dopes, anticorrosion, antifire and preservative chemical specialties); and for the specialized maintenance of space vehicles and the facilities required to house and launch them.

(*Turn to Page* 109)

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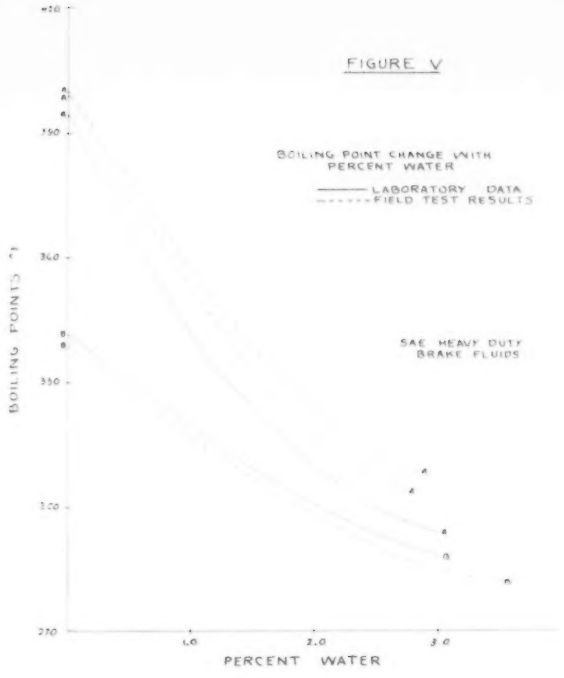
Brake Fluid and Brake Maintenance

By Stanley W. Coryell and Donald H. Hanson*,

R. M. Hollingshead Corp.,
Camden, N. J.

Part II



IN Figure V, two brake fluid curves plotted from the test data were superimposed over corresponding curves of the same fluid plotted from laboratory additions of water. Again, the correlation is surprisingly close.

From this data, it must be concluded that the most significant change in boiling point experienced with fluids in service operation is due mainly to water absorption. Further, that the change is a factor of time and not mileage, and that higher initial boiling fluids offer more boiling point reserve over the service life of the fluid than do those with initially lower boiling points. In establishing a factor for a periodic total change of brake fluid in an automotive hydraulic system, *length of service* of the fluid should be the criterion. More work on this factor is obviously in order before any recommendation is made.

Pressure, moisture, heat and age deteriorate fluid which harms rubber and metal: There may be some question as to whether brake fluid actually deteriorates in service, literally, or whether contaminants introduced into the fluid system are responsible. Component parts may very well be the limiting factor rather than the brake fluid. From information contained in "The Importance of Heavy Duty Brake Fluid to Safe Motoring," Markey, December 4, 1956, it would appear that "brake fluids meeting the SAE specifications do not break down chemically causing any serious hydraulic brake problems." It was noted in the same paper, that contamination from dirt and water occurs, and that dirt or solids may also enter the system causing abrasion of the pistons and cups.

Corrosion in brake systems occurs in varying degrees, depending on the particular fluids and operating conditions. Moisture appears to contribute most to lowering of the boiling point and is a factor also in corrosion. Much of the corosion in brake systems is caused by iron and aluminum parts, and such corrosion residues are abrasive. Corrosion sludges and grit can become lodged under sealing edges of rubber cups, thus causing leakage. Figure VI shows this effect. When corrosion advances and salts build up, relief ports in master cylinders may block up, freezing pistons.

Rubber cups: Rubber cups contain organic materials which may be affected by brake fluids, heat, ageing and the presence of certain metals. Because of more severe operating conditions, and higher operating temperatures, natural rubber cups have been largely replaced by more heat resistant synthetic (GRS) cups. While these latter appear to be compatible with all quality brake fluids, formation of gum and dry deposits on the pistons have led to premature brake failures. Our experience indicates that more precipitation and corrosion in brake cylinders occur with synthetic cups than was experienced with natural rubber cups. It might be noted here, that W-H-910, Federal Heavy Duty Brake Fluid Specification, still requires specification tests on natural rubber cups only.

Rubber swell seems more critical with synthetic cups than with natural rubber cups. Erratic swell results have been observed both in the field and in the laboratory. Field experience with various brake fluids and with (GRS) cups has actually shown shrinkage of the cup base diameter on several occasions. Leakage and failure occurred in these cases.

*Paper presented Dec. 7, 1960 during 47th annual meeting, Chemical Specialties Manufacturers Assn., Hollywood, Fla.

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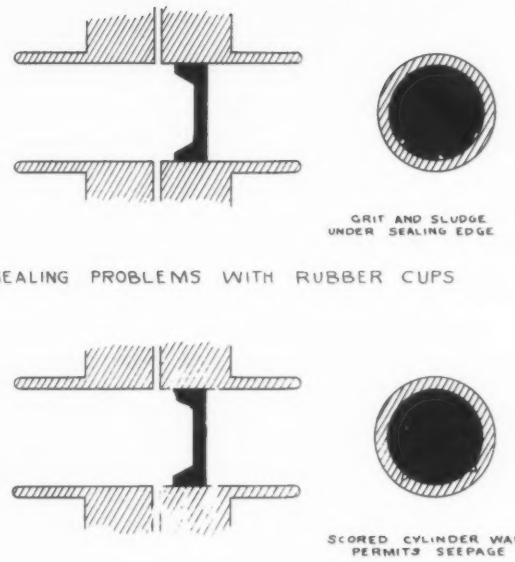
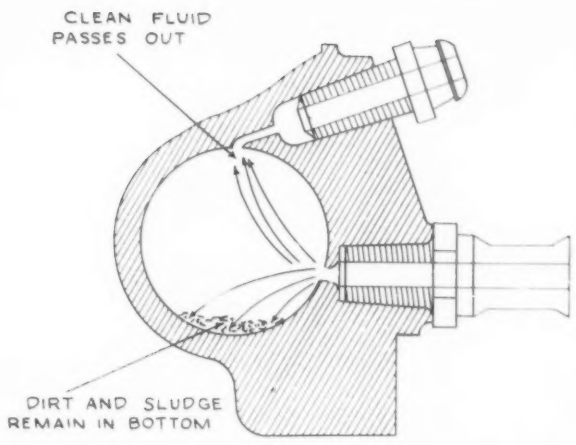
FIGURE VI



SEALING PROBLEMS WITH RUBBER CUPS

FIGURE VII



RESULT OF FLUSHING SYSTEM

In the laboratory we have observed that the final swell of a rubber cup is dependent on the last fluid with which it was in contact. If a fluid is used which swells the cup substantially and is later replaced with a fluid which swells but little, the rubber cup will shrink and take on a final swell coinciding with that which would have been obtained if only the second fluid had been used. Conversely, if swelling is insignificant with initial fluid contact, removal and replacement with a fluid that causes greater swell, will increase rubber swell equivalent to the effect of the second fluid alone. This factor may help explain mysterious leakage in refilled systems in which cylinder assemblies had been untouched but fluid replaced. Table VII indicates changes experienced when a replacement fluid has a swell rate different from the fluid used previously.

New vehicle storage: New vehicle storage is another area in which brake problems have developed. Vehicles and automobiles may stand for considerable periods before being used full time. We do not know why such storage creates brake problems leading to failure of the system, but the evidence is too strong to ignore. Gumming and corrosion of brake parts has been noted in cars after long storage. MIL-H-46046 Specification, "Preservation and Operational Hydraulic Fluid," for use in parts and vehicles in storage, has been recently released.

Cleaning of systems with flushing alcohols (or flushing fluids): There is still strong interest in the trade in using some solvent or material to flush out brake systems before installation of new fluid. In our experience there is no advantage to flushing with anything other than the replacement fluid. A flush not containing prime brake fluid ingredients, unless completely removed from the system, degrades brake fluid put in later. While blowing dry with clean (filtered, moisture-free) air may be possible, some technique for this procedure would have to be worked out. If a system is so bad that a cleansing flush is needed,

Table VII. Changes in Rubber Cup Swell with Subsequent Brake Fluid Replacement

Fluid	Temp.	Cup	Av. Swell	Change Fluid	Final Swell	Change From 1st to 2nd Fluid
A	158	XO	+0.027	B	+0.009	—0.018
	75	XO	+0.008		+0.006	—0.002
	158	GRS	+0.023		+0.001	—0.022
	75	GRS	+0.010		+0.007	—0.003
B	158	XO	+0.010	C	+0.012	+0.002
	75	XO	+0.004		+0.008	+0.004
	158	GRS	+0.005		+0.002	—0.003
	75	GRS	+0.002		+0.002	+0.001
C	158	XO	+0.008	D	+0.030	+0.022
	75	XO	+0.008		+0.015	+0.007
	158	GRS	+0.004		+0.018	+0.014
	75	GRS	+0.004		+0.014	+0.011
D	158	XO	+0.031	E	+0.011	—0.020
	75	XO	+0.014		+0.007	—0.007
	158	GRS	+0.019		+0.004	—0.015
	75	GRS	+0.008		+0.006	—0.002
E	158	XO	+0.012	A	+0.023	+0.011
	75	XO	+0.004		+0.006	+0.002
	158	GRS	+0.003		+0.017	+0.014
	75	GRS	+0.002		+0.010	+0.008

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disassembly, cleaning, parts replacement, etc., is preferable.

Cleaning of disassembled parts with pure alcohol is satisfactory. Parts should always be lubricated with replacement brake fluid before final assembly and installation. Is flushing of the system advisable under any conditions (if disassembly has not first been done)? Figure VII shows that grit and sludge can be washed down from the master cylinder or the brake lines into wheel cylinders, where it will stay because of the construction of the cylinder. A flushing medium such as alcohol will also tend to remain in the bottom of the cylinder and will not be completely removed by the clean fluid being bled through the cylinder. Before realizing that this action was taking place, we had experienced failure in field tests on the order of 50% with new wheel cylinders. Leakage was caused by dirt getting under cups and breaking the seal.

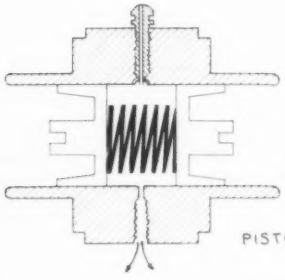
Now we flush brake lines from new master cylinder, with all wheel cylinders off car, using replacement brake fluid as the flushing medium. If grit or sludge is evident in this flushing procedure, brake lines are replaced. New wheel cylinders are then emplaced and bled in a normal fashion. Using this method for brake fluid tests, in the past two years we have not experienced a failure which could be traced to an inadequately cleaned or improperly flushed system.

Never use gasoline or oil in connection with any hydraulic brake parts: This caution cannot be too strongly emphasized. We have seen more failures traced to this cause than any other single malpractice. Any petroleum product, including carbon tetrachloride, can cause serious immediate damage to brake parts resulting in a premature failure almost impossible to diagnose. A greasy fingerprint on a rubber cup can damage the part significantly. In one complaint we were able to clear up every vestige of trouble by insisting on a clean shop, clean paper under the parts, and clean hands for the mechanic working on such parts. Contamination of brake parts by greasy hands, oily and greasy bench, and a filthy shop had all contributed to a serious cycle of brake failures initially blamed on the brake fluid being used. Once the poor practice was corrected, shop jobs were satisfactory.

Do not spill brake fluid on brake lining or car finish: Knowing the damage that may readily be caused by failure to observe this warning, it is surprising that all brake fluid labels do not carry such a warning. Several which do, offer no remedy if spillage does occur. Flushing with water immediately should remove all traces of brake fluid. Statements to this effect should be on every label.

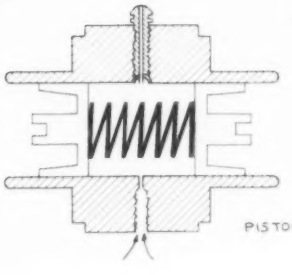
Other precautionary warnings: We mention precautionary labeling at this time to focus attention on the increasing importance of such statements. Warning statements will become obligatory in some states soon, and careful observance of the letter of the law must be carried out. There is considerable controversy at present as to the toxicity of brake fluids, and this is now being studied by toxicologists of the various brake fluid manufacturers. New York State requires a warning statement as to the flash point. Other statements will be required in the future.

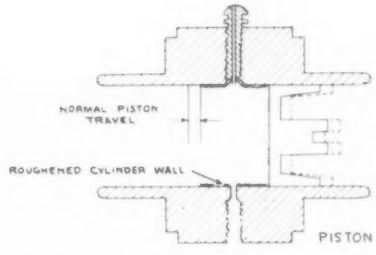
It would be interesting, while on the subject of labeling, to obtain some decision from the courts as to the liability of a brake fluid manufacturer with respect to *inadequate* direction copy. For instance: if no warning against use of petroleum solvents appears on the brake fluid label, and if a customer uses kerosene to flush out a brake system, before installing a replacement brake fluid, and fail-



WHEEL CYLINDERS

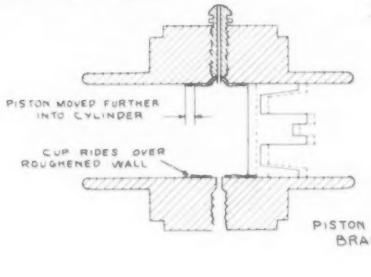
FIGURE VIII





WHEEL CYLINDERS & BRAKE RELINING

FIGURE IX



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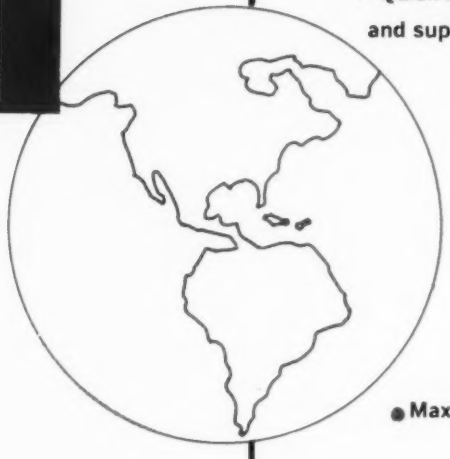

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ure of the brake system occurs resulting in a fatal accident—can the customer sue? With this pleasant thought, we leave this subject.

All units should be removed, disassembled, thoroughly cleaned, examined, properly reassembled or replaced, and reinstalled: We can all see the price of brake jobs sky-rocketing if this recommendation is followed. Yet, is there a better way? Granted the problem of parts in poor condition exists, is it necessary to take the entire system down for a simple brake relining job? The authors are convinced that only by complete examination of the brake system, when brakes are to be relined, can a satisfactory job be done.

In Figure VIII we note pistons travel normally as brakes are operated. When pedal pressure is applied, pistons are forced out by hydraulic pressure to operate brake shoes. When pedal is released, shoe springs return pistons to compressed or inoperative position. Hence a travel path is established for each wheel cylinder (and master cylinder) piston. This path is kept highly polished by the movement and, generally speaking, free from severe corrosion effects. However, cylinder walls not traveled in piston movement, often become roughened, pitted, and accumulate in that area sludge or grit formed in the system.

When a relining job is done, the position of the piston within the cylinder is changed, as noted in Figure IX. Piston and rubber cup are forced back into the cylinder so that piston travel now covers part of roughened wall area, and cup rides over sludge or grit. Leaks can and do develop. Better shops today will not touch a relining job, unless the customer is also willing to have a complete examination of the system at the same time. Replacement of defective or unsatisfactory parts is then mandatory if the job is to be guaranteed. Shops have been able to keep their brake job returns to a minimum only by such methods. The authors, through bitter and costly personal experience, have found that only a system tear down gives satisfactory and dependable results. Elimination of the $4.95 and $9.95 brake reline jobs would benefit all quality manufacturers of brake parts and brake fluids.

Honing Cylinders

To hone or not to hone: Honing has many proponents as well as opponents. We have found that honing may be satisfactory with some parts, but frequently unsatisfactory with others. Single end cylinders do not lend themselves well to honing, and many shops simply replace such cylinders if any question arises concerning serviceability.

In a survey among better local brake shops in the Camden area recently, 50% of those queried *preferred* to replace all 4 wheel cylinders when installing new linings, and 30% would not touch the job unless new cylinders were installed. 25% would *polish* bore of all wheel cylinders and rebuild, but would not use grinding hone. Only 25% actually did honing, but all stated that they would hone only if possible, otherwise they would replace cylinders.

Our own experiences with honing were unsatisfactory. It does not appear possible to duplicate the original highly polished finish in wheel cylinder bore by common honing. We found the problem of leakage greater with honed cylinders than in new ones. We did find that many honing problems could be traced to improper practice. Honing done on the backing plate with the cylinder in place, rather than on the bench as usually recommended, was frequently unsatisfactory because a poor job was done. Lubrication of hone was often done with fluids other than brake fluid or alcohol, running the risk of contamination. Deburring of the internal parts in the cylinder was rarely done, although recommended in service manuals and with special deburring tool supplied for this process. Hones were frequently used long past a point when they should have been discarded. Use of a roughened, chipped and irregular shaped hone does not contribute to mechanical perfection. We believe that honing should be subject to more critical evaluation than in the past.

Bleeding of brake lines: Whenever a brake line has been disconnected, or when fluid is replaced, or air gets into the system, the brake system must be bled. There is general accord as to how "pedal bleeding" is done, but opinions differ widely where pressure bleeders are concerned. Manufacturers of such bleeders strongly approve of such units, which are convenient for small shops. In surveying local brake shops, we found 15% used bleeders with no problem. 40% flatly refused to use bleeders with no adequate explanation, and the remainder would not use a bleeder because of sludge and sediment which they believed was stirred up and distributed through the system by use of a bleeder. One shop used a bleeder for trucks only.

If the effort has been made to eliminate sludge and sediment from the brake system by proper practice, then the biggest argument against use of bleeders noted above will have been eliminated. The cost of such units undoubtedly plays some part in their rejection by many shops. In discussing bleeders in the field, we have found that many problems with bleeders are the fault of the operators rather than the units themselves. Units are permitted to become contaminated, are sometimes used for other things besides brake fluids, and are not properly serviced and maintained. In many shops where several mechanics are always present, bleeding is accomplished faster doing pedal bleeding. For this reason bleeders, where available, are not used.

★

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CSMA Meeting

(*From Page* 96)

Mr. Jessop then raised the question of overlapping with other professional organizations and expressed the belief that the aerospace field offers CSMA an opportunity of pioneering new horizons.

First speaker on the panel was Stanley W. Coryell of R. M. Hollingshead Corp., Camden, N.J., who read a paper on "Cleaning in the Aero-Space Field" written by Marvin C. Weast of Hollingshead's research and development division.

Cleaners used for aircraft and space craft may be divided into surface cleaners and engine cleaners, the speaker pointed out.

The two most effective types of aircraft surface cleaners are either of the alkaline water-base type or of the solvent emulsion type. The latter is gradually being replaced by the alkaline water base products which are more economical, more efficient, less hazardous and free from sewage disposal problems. Air Force specifications have been modified accordingly.

Slides were shown by Mr. Coryell to demonstrate equipment for the application of aircraft surface cleaners of all types, including also steam cleaning compounds, aluminum polishes, water rinsable paint strippers and others.

Most commonly used engine cleaners include vapor degreasers, cold-tank and hot-tank carbon removers, and scale removers. Composition and application of these products were outlined by the author. Missile cleaning and decontamination of radioactive surfaces were among the specialized aspects discussed.

The use of vapor insecticides such as DDVP and the development of a device for producing controlled amounts of DDVP vapor and dispensing the vapor uniformly in commercial aircraft was discussed in a paper by Lawrence B. Hall. Mr. Hall is associated with the Technical Development Laboratories of the U. S. Public Health Service, Savannah, Ga. His paper was entitled "A Vapor Insecticide System for Aircraft." He concluded his remarks by recommending that "those charged with the responsibility of developing new insecticides and germicides turn at least part of their attention from the area of residual action to that of vapors." He added that "new developments in this field could be very rewarding in terms of commercial success and in service to mankind. The use of such vapor compounds is not, of course, limited to aircraft."

The next speaker, Milan E. Groby of General Electric Co's Silicone Products Department in Waterford, N. Y., discussed "Silicone Rubber as Thermal Coatings for Missiles and Space Vehicles."

"Some Uses of Chemicals in Aerospace Applications" were presented by Charles Anthony, Kidde Aero-Space Division, Walter Kidde & Co. High temperature lubricants and sealing and lubricating compounds which will operate satisfactorily at −65° F. as well as at higher temperatures, which withstand radiation exposures and resist oxidation attack by chemical fuels and oxidizers used in propellant work are among the most urgent needs of aero-space field, the speaker reported. The use of light metals in many space craft applications necessitates, new and better fire extinguishing materials, Mr. Anthony said.

Aerosol Division—II

ABOUT 20 per cent more non-food aerosol units were loaded in the United States and Canada during 1960 than in 1959, according to the 10th annual CSMA survey of aerosol and pressurized products. Collated from reports by 128 companies, the units filled in 1960 amounted to 606,992,370, compared with 498,287,943 and 115 participants in 1959. It should be noted that these totals and all other figures shown in the tabulation on page 73 are *actually reported* totals, which have been adjusted upward according to information received from valve and container manufacturers.

Production reported by Canadian fillers and included in the tabulated totals amounted to 25,126,922 in 1960, compared with 20,176,245 in 1959. This represents an increase of about 25 per cent.

As adjusted by the Product Survey Committee of the Aerosol Division, the total number of non-food aerosols produced in 1960 amounted to 670,000,000, a 17 per cent increase over 1959 when the adjusted total was placed at 575,000,000 units. The difference between reported and adjusted totals is placed chiefly in 11 categories as follows:

Insect spray	15 million
Coatings, paints	1 "
Room deodorants	15 "
Hair sprays	5 "
Medicines	2 "
Colognes	3 "
Glass cleaners	2 "
Shoe and leather dressings	2 "
Starches	5 "
Shave creams	7 "
All other	6 "

Nine container manufacturers reported that 619,862,939 non-food aerosol containers for domestic use were produced and sold in 1960, according to E. E. Husted of Union Carbide Chemicals Co., chairman of the aerosol product survey committee. In presenting survey results, May 17, Mr. Husted emphasized the close agreement between the data obtained from fillers and those supplied by the container industry.

The total number of aerosol valves produced and sold in 1960 amounted to 788,290,245, it was

(*Turn to Page* 120)

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Table 5A.—Petroleum-Coal Chemicals in Surfactants[1]

Classification of surfactant	1959 sales (pounds)	Representative member	Petroleum-Coal component	Petroleum-Coal component percentage	Petroleum-Coal component weight (pounds)
Cyclic esters and ethers, nonsulfonated (nonionic)	110,189,000	Nonylphenoxy polyethoxy-ethanol	Nonylphenol	33	36,362,000
			Ethylene oxide	67	73,827,000
Nitrogen-containing cyclic surfactants, nonsulfonated (cationic and amphoteric)	10,849,000	Benzyldodecyldimethyl ammonium chloride	Toluene	27	2,929,000
			Dodecyl alcohol	55	5,967,000
			Methyl alcohol[2]	20	2,170,000
Alkyl benzenoid surfactants, sulfated and sulfonated (anionic)	526,693,000	Dodecylbenzenesulfonic acid, sodium salt	Dodecylbenzene	88	463,490,000
Naphthalene derivatives, sulfonated (anionic)	3,480,000	Dibutylnaphthalenesulfonic acid, sodium salt	Butyl alcohol[2]	38	1,322,000
			Naphthalene	38	1,322,000
Miscellaneous cyclic surfactants, sulfated and sulfonated (anionic)	48,302,000	Xylene sulfonic acid, sodium salt	Xylene[3]	50	24,151,000
Polyethoxyethyl tridecyl ether (nonionic)	5,851,000	Polyethoxyethyl tridecyl ether	Tridecyl alcohol	31	1,814,000
			Ethylene oxide	69	4,037,000
Acyclic acids, alcohols, esters, ethers, sulfated and sulfonated (anionic)	194,366,000	Dodecyl sulfate, triethanolamine salt	Triethanolamine	36	69,970,000
Miscellaneous oils and waxes,	3,822,000	Mineral wax, sulfonated	Mineral waxes (indefinite)	70 (estimated)	2,745,000
	——	——	——	—	690,106,000

[1]/ The amount of petroleum-coal chemicals required for the representative members, or members, of each group classification was extrapolated on the basis of entire sales for the group.
[2]/ May also be considered as an agricultual chemical.
[3]/ Includes a partial amount of benzene.

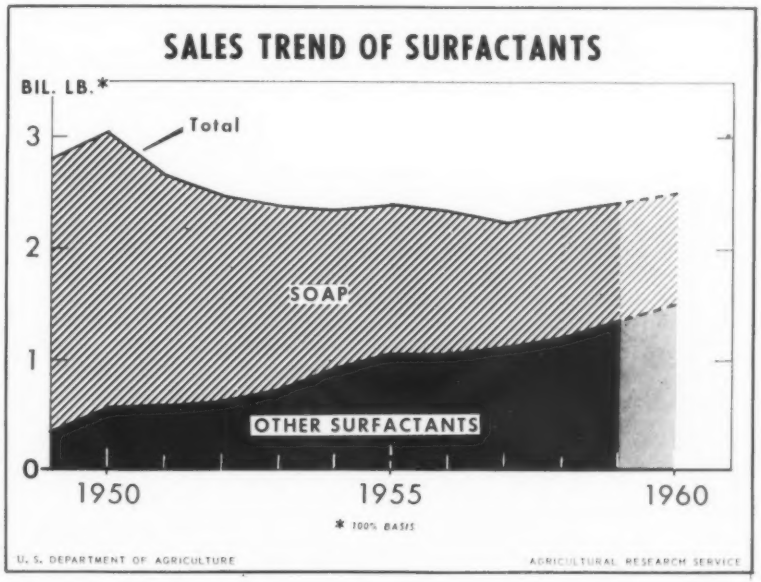
Surfactant Industry

(*From Page 55*)

zene sodium sulfonate, derived entirely from petroleum and coal, was the principal beneficiary. From the beginning of 1949 to the end of 1959, the sales of this product increased from 100 million to 500 million pounds annually, or from 4% to 20% of total surfactant sales (Fig. 2). Assuming formulation on a 4-to-1 basis, this amounts to about 2 billion pounds of household surfactants.

The displacement of soap occurred in the powder type rather than in the bars. A further displacement of soap in bar form is to be expected as soon as better formulation of bar detergents from other surfactants can be achieved. However, achievement of certain research objectives may alter this downward course and result in increased utilization of fats and oils. These research objectives are:

(1) Formulation of soap with sequestering agents to nullify the effects of hard water;
(2) Formulation of soap with dispersing agents to suspend the precipitated calcium soap and other metal soaps in such form that they can continue to perform as a detergent; and
(3) Formulation of bar detergents



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from fat-derived surfactants.

Soap may, if successfully formulated, retain all of the bar soap business in view of its superior foam, feel, and erosion qualities, and regain part of the lost powder sales. Fat-derived surfactants, other than soap, are known to have better bar characteristics than the petroleum-based surfactants, and, with improved formulation, they may become leaders in the bar detergent field.

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Acknowledgment

The authors are indebted to Dr. Donald Price, consultant; Dr. Raymond L. Mayhew, Manager, Technical Services and Development, Antara Chemicals, Division of General Aniline and Film Corp.; Dr. Waldo C. Ault, Chief of Animal Fat Products Laboratory, Eastern Utilization Research and Development Division, U. S. Department of Agriculture; and Mr. Frederick J. Poats, Market Development Division, Economic Research Service, U. S. Department of Agriculture for their critical suggestions concerning this report.

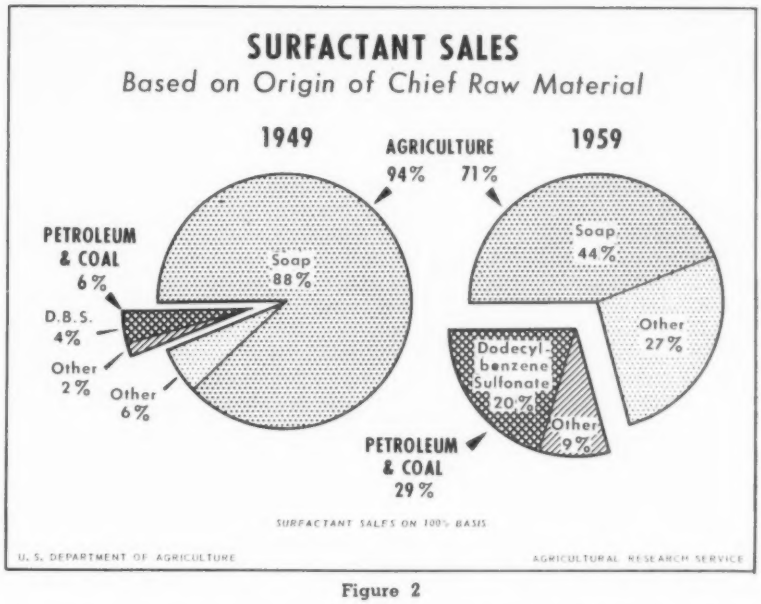


Figure 2

—★—

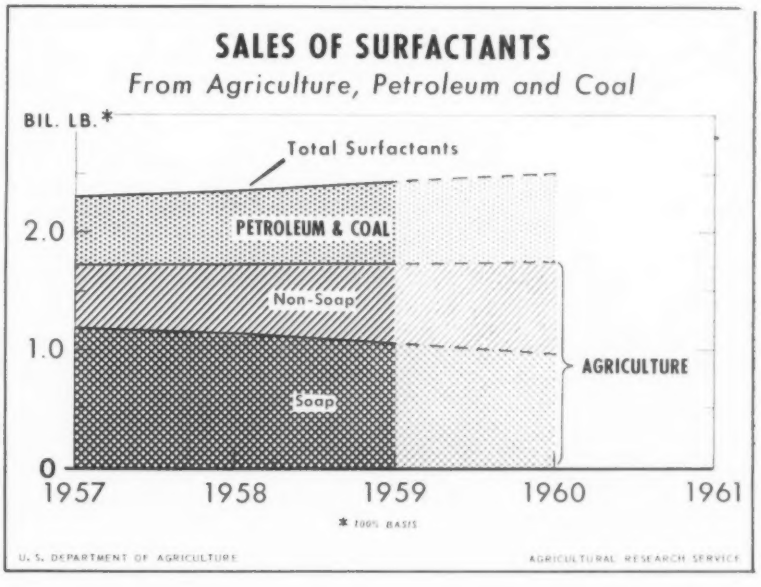
Hercules Renames Depts.

A change in the designation of some operating departments of Hercules Powder Co., Wilmington, Del., has been announced, effective July 1.

The redesignated departments are: Explosives, Synthetics; Cellulose and Protein Products (formerly Virginia Cellulose); Polymers (formerly Cellulose Products); and Pine and Paper Chemicals composed of the former Naval Stores and Paper Makers Chemical Departments). Other departments remain unchanged.

General managers of the newly constituted operating departments are: Werner C. Brown, Polymers; Edward G. Crum, Cellulose and Protein Products; Jack D. Hayes, Explosives; G. Fred Hogg, Pine and Paper Chemicals; and Donald H. Sheffield, Synthetics.

Figure 3



using 10 to 20 per cent silicate, 17 per cent of phosphate can be held in solution if added in the dry form.

Contrary to the results with sodium silicates, the substitution of part of the tripolyphosphate by hexametaphosphate reduced the area of compatibility (Figure V). At least 20 per cent silicate solids was necessary to obtain the maximum (14 per cent) mixed phosphate concentration. This compares with 12 per cent "Kasil 88" and 18 per cent straight sodium tripolyphosphate. At low silicate concentrations the solubilities of the mixed phosphates were greatly reduced.

A considerably enlarged area of compatibility between the potassium silicate "A" and sodium tripolyphosphate was established as shown in Figure VI. The maximum phosphate concentration of 20 per cent was with 10 per cent silicate solids. Concentrations up to 47 per cent total solids can be obtained at higher silicate concentrations. When half of the tripolyphosphate was replaced with hexametaphosphate (Figure VII), the area of compatibility was reduced at both high and low silicate concentrations.

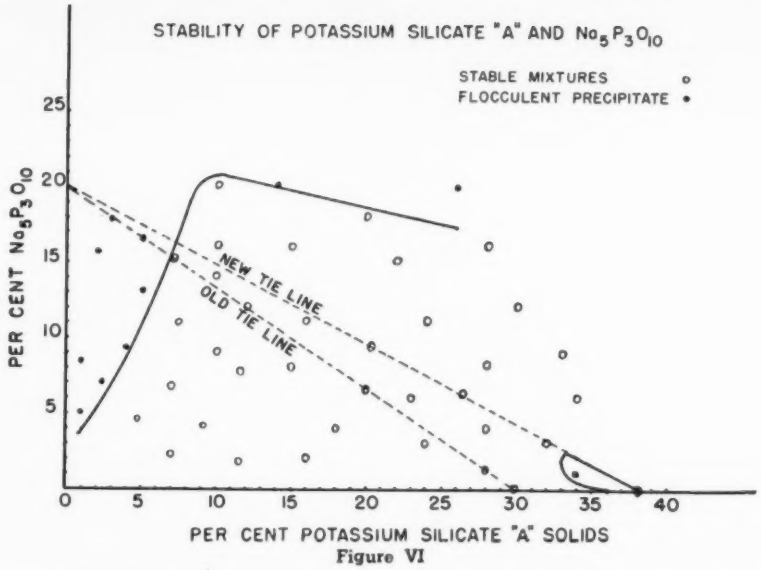


Figure VI

The most alkaline potassium silicate prepared (potassium silicate "B") was not quite as alkaline as the one used in the earlier experiments (2.65 molecules of

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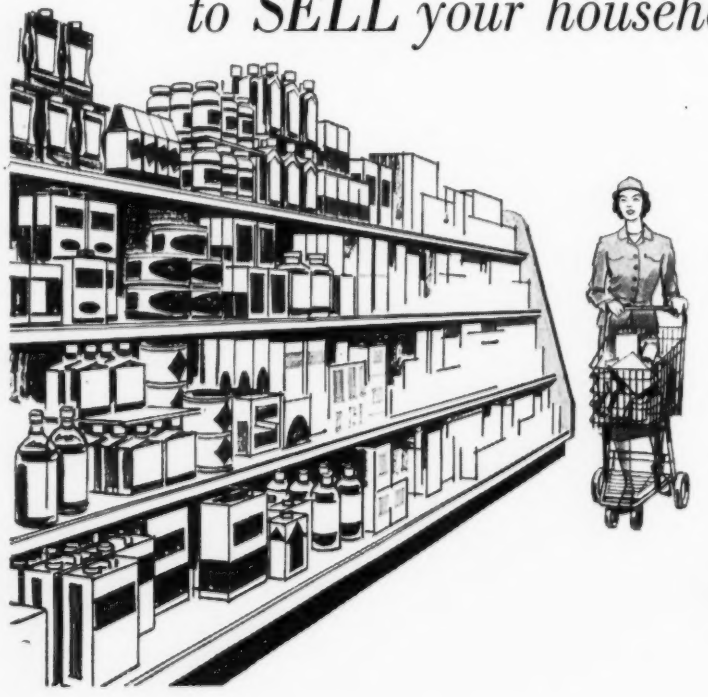

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Deet, a complete repellent in itself, offers greater protection from a wider range of biting pests than the formerly used combination of three repellent compounds. In addition, deet provides the military superior resistance to wiping action and sweating as well as an amazing ability to withstand the effect of water rinsing that servicemen might encounter during exposure to heavy rainfall and while fording streams.

This same material, selected by the military to protect servicemen under the most extreme field conditions, is available for your commercial preparations. In addition to its proved effectiveness, Metadelphene does not leave a greasy film on the skin. No other insect repellent need be added to Metadelphene—no other chemical or combination of chemicals can approach its performance. Metadelphene *in itself* is the *complete insect repellent!*

*"deet" is the common name officially adopted by the Entomological Society of America for the meta isomer of diethyltoluamide

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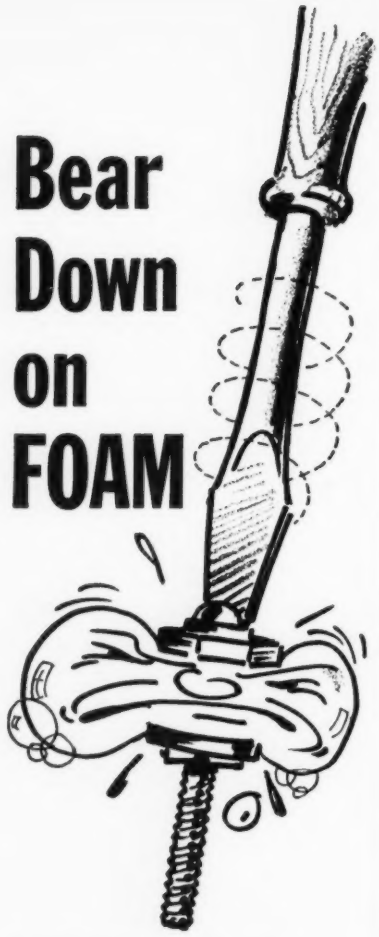

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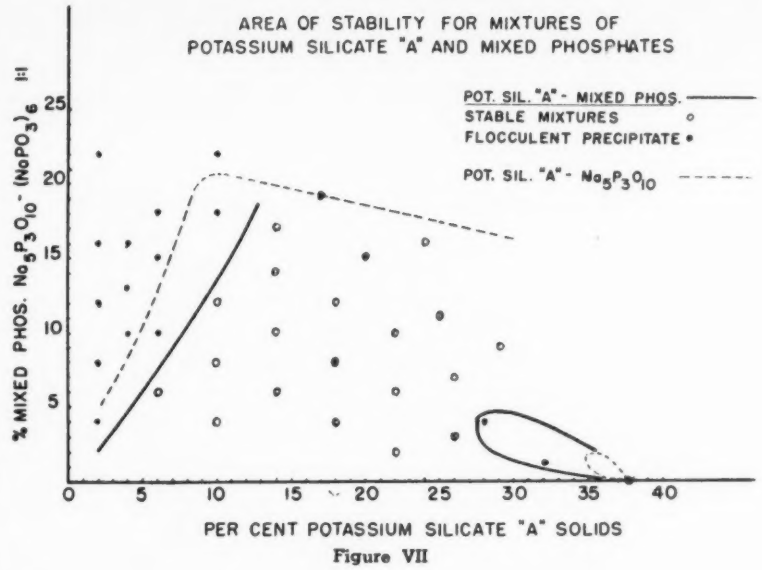

AREA OF STABILITY FOR MIXTURES OF
POTASSIUM SILICATE "A" AND MIXED PHOSPHATES
POT. SIL. "A" - MIXED PHOS.
STABLE MIXTURES
FLOCCULENT PRECIPITATE
POT. SIL. "A" - $Na_5P_3O_{10}$
% MIXED PHOS. $Na_5P_3O_{10}$ - $(NaPO_3)_6$
0 5 10 15 20 25 30 35 40
5 10 15 20 25
PER CENT POTASSIUM SILICATE "A" SOLIDS

Figure VII

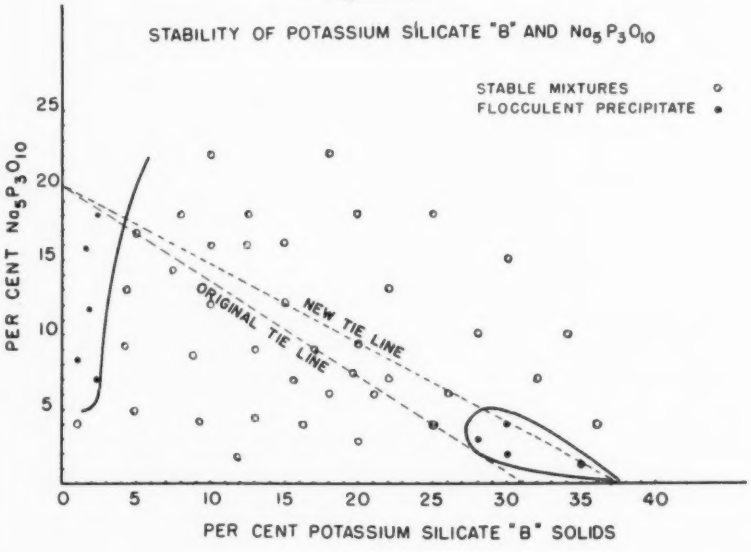
silica per one of K_2O, as compared with 2.53 before). It is believed this difference is not sufficient to affect the following conclusions. The solubility of tripolyphosphate in this solution was remarkable. At least 22 per cent solid phosphate can be dissolved in solutions containing 10 to 18 per cent silicate solids (Figure VIII).

By comparing Figures VIII and IX it will be seen that the area of compatibility with both high and low potassium silicate "B" concentrations is greatly reduced when mixed phosphates are substituted for the tripolyphosphate. For example, at a concentration of 15 per cent tripolyphosphate the range of compatibility is between five and 30 per cent silicate solids, while with 15 per cent mixed phosphates the range is limited between 10 and 25 per cent silicate. However, 20 per cent of the phosphates dissolved in a 22 per cent solution of the silicate.

The compatibility of potassium silicates with the mixed phosphates was less than that of sodium silicates. With tripolyphosphate alone the opposite was true.

In every case where crystals formed in the sodium systems, they

Figure VIII


STABILITY OF POTASSIUM SILICATE "B" AND $Na_5P_3O_{10}$
STABLE MIXTURES
FLOCCULENT PRECIPITATE
NEW TIE LINE
ORIGINAL TIE LINE
PER CENT $Na_5P_3O_{10}$
0 5 10 15 20 25 30 35 40
5 10 15 20 25
PER CENT POTASSIUM SILICATE "B" SOLIDS

were evident in less than a week. At high phosphate and low silicate concentrations floc formed rapidly. Systems containing larger amounts of silicate were stable for longer periods. Thus, with 18 per cent mixed phosphates, two per cent of "E" silicate gave floc in less than a week. When five per cent of silicate was present, the mixture was stable for two weeks and with nine per cent silicate, stability was extended to seven weeks. "Star" and "Starso" showed a similar gradual separation of floc in the low silicate range, but it was not as marked. In the higher silicate ranges, indicated as stable areas in the graphs, there is no evidence of any change with time.

Mixed Phosphates versus Potassium Pyrophosphates

In our earlier paper, we included charts showing the compatibility of potassium pyrophosphate ($K_4P_2O_7$) with "E," "Star," and "Kasil 88." This phosphate is much more soluble than $Na_5P_3O_{10}$ or the sodium hexametaphosphate, and the resultant compatibility curves are quite different. With "E" or "Star" and $K_4P_2O_7$, the compatibility curve is like that of an inverted "U." In the case of "E" and $K_4P_2O_7$, the silicate limits are about five and 22 per cent, with a maximum phosphate of 25 per cent. In comparison, "E" with mixed phosphates (Figure I) has a maximum phosphate content of only 18 per cent but at lower amounts (10 to five per cent) the stable area is extended to a silicate content of 35 per cent.

The enlarged stability area with "Star" is even greater. In the case of "Star" and $K_4P_2O_7$, the silicate limits rise almost vertically at three and 20 per cent to the phosphate maximum of 31 per cent. With "Star" – mixed phosphates (Figure II), the maximum phosphate is 23 per cent, but at 15 per cent phosphate nearly 25 per cent of silicate is possible, and a combination of five per cent phosphate with 35 per cent silicate also is in the range of stability.

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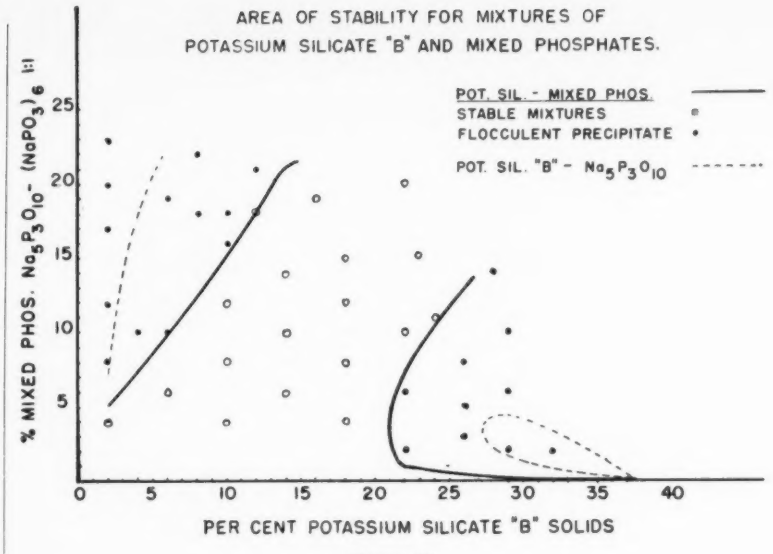

Figure IX

The stability of "Kasil 88" with $Na_5P_3O_{10}$ (Figure V) is almost identical with that of "Kasil 88" and $K_4P_2O_7$. Substitution of mixed sodium phosphates markedly reduces the area of compatibility.

Addition of Syndets

Investigations of silicate and phosphate combinations with syndets of various kinds are under way. These systems become complicated because a coupling agent is required. Preliminary data indicate that in general the area of stability is somewhat reduced when syndets and coupling agents are added.

Summary and Conclusions

Areas of compatibility with three sodium silicates were increased by replacing sodium tripolyphosphate with a 50-50 mixture of sodium tripolyphosphate and glassy hexametaphosphate. Under these conditions stable mixtures can be obtained with:

(a) 14 per cent "E" and 17 per cent mixed phosphates,
(b) 12 per cent "Star" and 22 per cent mixed phosphates, or
(c) 10 per cent "Starso" and 23 per cent mixed phosphates.

Small losses in area at low silicate concentrations were much more than compensated for by the increased phosphate solubility at higher silicate concentrations.

By dissolving sodium tripolyphosphate directly in concentrated potassium silicate solutions the areas of compatibility were considerably extended over those reported earlier (1). Seventeen per cent of tripolyphosphate can be held in solution with 10 to 20 per cent of "Kasil 88" solids. In some cases the solubility of the phosphate in the silicate solutions was greater than in water.

Contrary to the results with sodium silicates, in potassium silicate mixtures the areas of compatibility were reduced when half the polyphosphate was replaced with glassy hexametaphosphate. This effect increased as the ratio of SiO_2 to K_2O decreased.

In the past, experimental mixtures have been able to carry only small amounts of phosphate because the amount of silicate was too low. By increasing the silicate content, larger amounts of phosphate, and hence of total solids, can be incorporated in a stable mixture.

Stable concentrates can be made most economically with "Star" sodium silicate in combination with a 50-50 mixture of sodium tripolyphosphate and sodium hexametaphosphate.■

Waste Water Treatment

New equipment said to remove suspended and dissolved detergents, lint, dirt, and objectionable organic matter from water discharged by coin operated laundry stores has been developed and placed on the market by Bruner Corp. (division of Hagan Chemicals & Controls, Inc.) 4767 N. 32nd St., Milwaukee 9.

The "Brunerclear" system is said to reduce turbidity to less than five ppm, to extract detergents above one ppm, and to remove floating solids, scum, color, grease or slick. In addition, chlorine doses are introduced automatically to insure satisfactory bacteriological condition of the effluent.

A chemical process using coagulant additives and removal of detergents and suspended matter by absorption in a clarifier and settling tank are employed in the automatic and continuous "Brunerclear" system. Tests indicate that biochemical oxygen demand (B.O.D.) reductions approaching 90 per cent can be realized by use of the system and dissolved oxygen content levels can be restored to almost clean stream conditions, according to the manufacturer.

—★—

New Pool Sanitizer

A new sanitizing agent for control of algae, bacteria, and fungi in swimming pools was introduced recently by Armour Pharmaceutical Co., Bio-Chemical Department, Box 511, Kankakee, Ill.

Designated "Armazide", the product is a combination of fatty acid derivatives said to be nonirritating, odorless, noncorrosive, and effective in hard or soft water. Use of the new sanitizer is claimed to cut need for chlorine in half.

"Armazide" in aqueous dilution may be poured into the pool from a sprinkling can. It may also be used as a foot bath and for sanitizing and cleaning floors and poolside equipment. The product comes in unbreakable plastic quart and gallon bottles. For use dilutions and quantities required, request data sheet from Armour.

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CSMA Meeting

(*From Page* 109)

reported by 11 valve manufacturers.

Hair sprays continue to be the leading item among aerosols as well as one of the major growth items, with sales of 111.8 million units in 1960, compared with 79.6 million units in 1959.

A shift to larger units is reflected in the figures for aerosol shave lather sales. In the colognes and perfumes category the market for one-ounce and smaller units has doubled itself since the last survey in 1959. By contrast, the over-one-ounce fragrance units show a slight sales decrease, reflecting the consumer's tendency toward carrying fragrance in her purse.

When comparing the wax and polish market in 1960 with previous figures, it should be remembered that the 1959 survey showed 12-ounce units of wax under "Other household products." Two new categories added this year are "Starches" in the household and "De-icers" in the miscellaneous group.

The number of glass and plastic containers loaded in 1960 totaled almost 43 million, compared with 25,259,999 glass containers in 1959. Metal containers of 16 ounces (but over 12) filled in 1960 soared to a total of 192 million from 131 million reported in 1959, reflecting the prevailing trend to larger containers.

A complete survey of food aerosols had been considered, Mr. Husted reported. However, its results would have been too revealing of individual performance. To provide some guide to the trend in the food aerosol field, the container manufacturers were approached for a report on aerosol containers sold and purchased for food packaging. The number of aerosol containers for food sold in 1960 totaled 59,509,566, Mr. Husted said.

The Product Survey Committee of the Aerosol Division sent questionnaires to 216 companies operating filling lines. Seven reported no production and 128 responded with a detailed breakdown of their aerosol products, according to Mr. Husted.

The room deodorants market has grown by about 11 per cent since 1959. Fillers reported 66,754,870 units loaded in 1960, compared with 59,723,589 in 1959.

Reported production of space spray insecticides declined a little, whereas that of residual type insecticides showed an increase of 20 per cent. Fillers' reports showed 37,118,175 units of aerosol space sprays loaded in 1960, compared with 38,750,648 units for 1959. Production of aerosol residual insecticides rose to 25,499,295 from 21,506,082 in 1959.

FOLLOWING E. E. Husted's presentation of the aerosol products survey, the Aerosol Division's afternoon meeting, May 17, heard a technical program consisting of four papers. A study on "Compatibility with Aluminum of a Number of Chemicals Used by the Aerosol Industry" by R. M. Howe and F. M. Languedoc, Connecticut Chemicals (Canada), Ltd., Toronto, Ont., was presented by Mr. Languedoc.

Uncoated aluminum cans were filled with a wide range of solvents, propellants and active ingredients in various combinations under controlled moisture conditions, Mr. Languedoc reported. The cans were examined after different periods of storage at 100° F. and at room temperature and the extent of corrosion determined. Results were evaluated visually. No attempt was made to measure weight loss of the container or aluminum pickup by formulations.

The authors arrived at the conclusion that "Polar solvents appear to be corrosive to bare aluminum but in many cases this tendency can be effectively controlled by water or other reaction inhibitors. Nonpolar solvents appear to be relatively safe, as do the majority of nonmetallic active ingredients."

The next paper, "Aerosol

Powders," by D. C. Geary and R. D. West, Union Carbide Chemicals Co., Tarrytown, N. Y., appears in full, starting on page 79 of this issue.

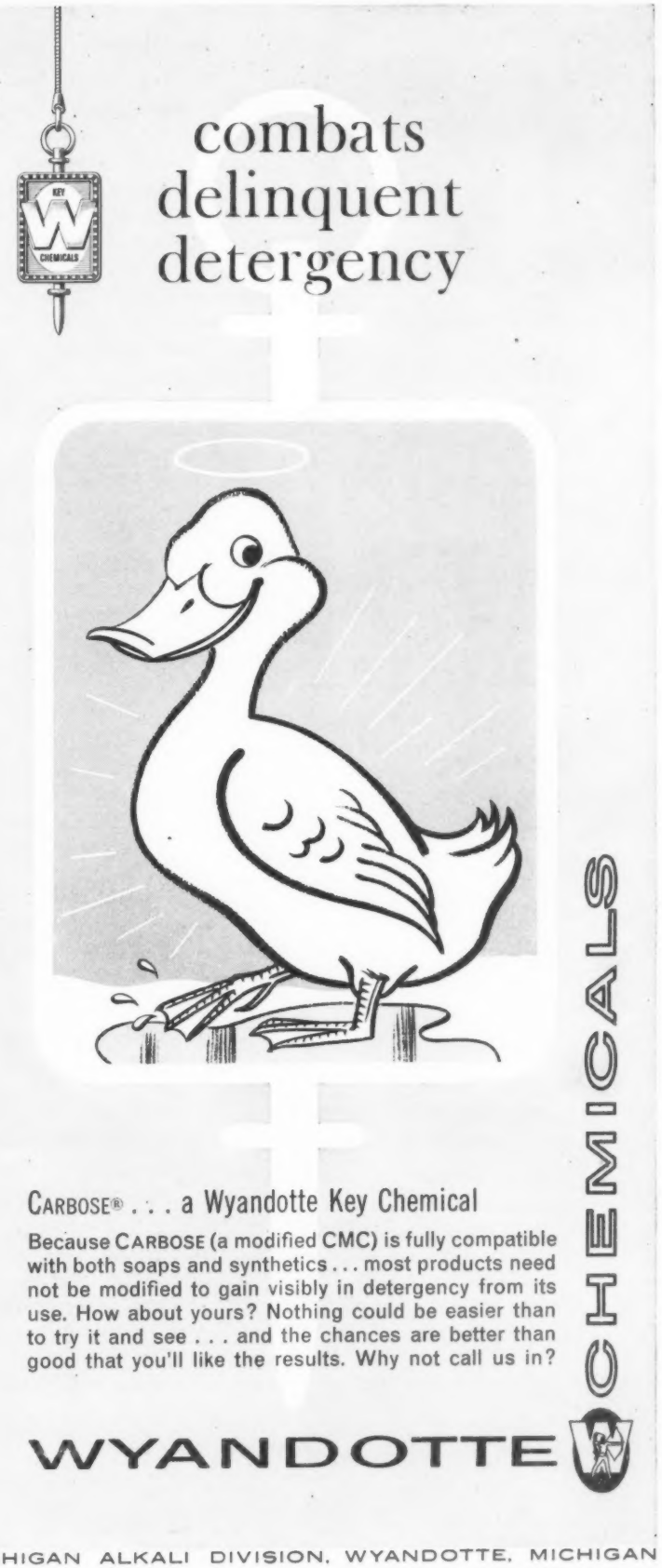
Use of nitrous oxide as an aerosol propellant for certain non-food foam products, aerated streams, and residual sprays was proposed in a paper entitled "Nitrous Oxide as a Propellant for Non-Food Aerosols," by John S. Hinn of Air Reduction Co., Madison, Wis. Under conditions encountered in the aerosol field, nitrous oxide does not dissociate, does not affect pH in aqueous solution, and does not impair metals, rubber or nylon, according to Mr. Hinn.

Methods of packaging were outlined, including the gasser-shaker and the under the cap filling techniques. A reserve of dissolved nitrous oxide in the aerosol product tends to limit pressure drop during use to an acceptable limit, Mr. Hinn reported. Economics of nitrous oxide as a propellant were discussed by the speaker and a pre-marketing check list was proposed for the benefit of the manufacturer.

F. A. Bower and L. J. Long of Freon Products Laboratory, E. I. du Pont de Nemours & Co., Wilmington, Del., offered suggestions for the "Stabilization of Alcohol-Based Aerosols." Stabilizer of choice is nitromethane, according to these authors.

"All aerosol products containing primary or secondary alcohols and propellant 11 run the risk of serious deterioration under certain conditions," Mr. Bower stated. "The inclusion of air, while beneficial, does not prevent corrosion taking place after a moderately long storage period. Experiments have demonstrated that this defect can be minimized by the use of nitromethane which is best added as a 0.3% solution in propellant 11. Toxicity studies on shampoos, hair sprays and other personal products have shown no difference between this inhibited and uninhibit-

(*Turn to Page* 179)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Cos. Chems. Meet

(*From Page* 58)

Cosmetic chemists and the A.M.A. committee could fruitfully cooperate in the education of the public in the intelligent use of cosmetics for the prophylactic daily care of normal hair and skin. "The present sporadic and limited exposures to reliable information of prospective life time of customers is inadequate," the speaker believes.

Other contributions to the technical program which was under the chairmanship of Morris J. Root, Geo. Barr & Co., Chicago, included a paper on "Instrumentation in the Cosmetic Laboratory," by G. M. Leigh and A. P. Kent of Colgate-Palmolive Co., New York. Speed and accuracy are the chief merits of modern analytical instrumentation, according to Mr. Leigh. To illustrate the usefulness of infrared spectrophotometry the speaker showed the spectra of diethanolamide, isopropanolamide, and monoethanolamide. Various gums, such as CMC, Irish moss, and "Veegum" can be conveniently identified by similar techniques, with the inorganic "Veegum" (SiO_2) giving a distinctly different type of curve from the organic materials.

Ultraviolet spectrophotometry serves for speedy identification of hexachlorophene and other ingredients in toiletries, Mr. Leigh reported. He cited menthol in shave preparations as an example of materials commonly identified by gas chromatographic techniques.

During the discussion following his presentation, Mr. Leigh was asked which of these analytical instruments he would buy if he worked for a concern able to afford only one of them. He named unhesitatingly the gas chromatograph as his choice, because of its versatility and wide scope of usefulness.

Jack Goodman of the Toni Co., Boston reviewed "The Contribution of the Organic Chemist to the Cosmetic Industry"; Theodore Swenson of Helene Curtis Industries, Inc., Chicago, "The Contribution of the Chemical Engineer to the Cosmetic Industry"; and Richard E. Faust of Potter Drug and Chemical Corp., Malden, Mass., "The Contribution of the Pharmaceutical Chemist to the Cosmetic Industry."

At luncheon, the special award of the Society of Cosmetic Chemists was presented to J. T. Davies, head of the department of chemical Engineering, University of Birmingham, England, by Sophie L. Plechner, Carter Products, Inc., president of the society. Dr. Davies was honored for his outstanding work in the field of surface chemistry.

The award winner was introduced by William C. Griffin of Atlas Powder Co., Wilmington, Del., who acted as eulogist. Dr. Griffin is the originator of the HLB concept (hydrophile-lipophile balance).■

★

Incorporate Japanese Firm

California Chemical Co., San Francisco, a subsidiary of Standard Oil Co., of Calif., recently announced the incorporation of a new Japanese company, Karonite Chemical Co., Ltd., in which Calchem has a 45 per cent ownership interest.

Karonite will manufacture and sell Oronite alkylphenols and lubricating oil additives under a license from California Chemical Co. One of Calchem's Japanese partners in the venture is Kao Soap Co., Ltd., which also owns a 45 per cent interest. Kao Soap is the largest producer of soap and surfactants in Japan.

The construction of Karonite's new plant near Tokyo, is scheduled to start in the near future. Involving an investment of approximately two million dollars, the plant is expected to be on stream in 1962, with an annual capacity of a half a milion gallons of alkylphenols and two million gallons of finished lube oil additives.

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The demand for butonate has brought about savings through mass production, making it economical as well as effective, safe and convenient for consumers. Convenient because it is non-staining, inoffensive in odor, approved for use in aerosol, space and direct sprays.

Butonate is compatible with most nonalkaline insecticides and fungicides. It can be formulated with most of the commonly used organic solvents... as an oil spray, emulsion, wettable powder or dust for household use. Other promising applications are being investigated—including the control of insects affecting livestock.

Formulating and labeling information on butonate and samples are available from Prentiss. To improve *your* insecticides, get in touch today!

**Butonate's manufacture is licensed by the Wisconsin Alumni Research Foundation under U.S. Patent Nos. 2927881, 2911435.*

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Packaging...

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New gallon and half-gallon blown plastic bottles are being used by Uddo Co., New Orleans, to market its "Sure-Klean" bleach. Bottles are equipped with built-in handles for easy use. Owens-Illinois, Toledo, supplies plastic bottles and screw-top closures; labels by Piedmont Label Co., Bedford, Va.

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Deodorants
Disinfectants
Floor Products
Insecticides
Laundry Bleach
Metal Cleaners
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How to develop

New Products for New Markets

Chemical market development's task is to screen product for profit and sales potential. Close cooperation with the production and sales staff is a must

By Henry C. Speel*,
Universal Oil Products Co.,
Des Plaines, Ill.

RAPID and constant development of new products is an outstanding characteristic of the chemical industry. The problems of increasing the chances of new product successes and decreasing the number of new product failures tax the imagination and skills of virtually all managements. Yet, no two organizations handle the multitude of product development functions in exactly the same way.

Most chemical producers have a permanent group of technically oriented people charged with new product development. It is called by many names. This group usually reports to a major executive officer or a committee. In an increasing number of companies, it is a nucleus to which specialists can be temporarily added to form a team for a specific task. People from research and sales and process development flow through as temporary specialist members of the permanent organization. Process development and market development are permanent functions that perform the basic screening task of the group.

The Commercial Chemical Development Association, a group of chemical executives devoted to the advancement of commercial chemical development in theory, practice and application, has set up the following definition of market development! ". . . that field of promotional effort between basic research and regular sales by which existing or potential markets for new products and entirely new fields of activity are developed and tested for profitable salability."

Market Development Tasks

Perhaps the most important problem once the decision has been made to take a new product beyond the test tube stage—is how to get the product out of the laboratory and up to tank car quantities in far less time than the traditional seven year period. To speed up this process, all the background information that can be supplied by chemical research, market research and process development groups must be utilized at the beginning of commercial development.

Those responsible for market development must (1) Collect the facts; (2) evaluate the product and markets; (3) analyze the facts; (4) submit program and recommendations. Theirs is a continuous task. New data from both internal and external sources are constantly being added to the fund of information that permits the market development group to analyze progress continuously. The sampling and preliminary sales efforts, initial publicity and planning programs are constantly being revised within the organized framework of market development.

Harry C. Speel

All products do not follow the same development program. There is a gradual shift of responsibility and activity from the research to the engineering, production and sales departments. At the conclusion of each intermediate stage, all facts and information are analyzed and transmitted to groups responsible for the next stage. The responsibility for keeping all phases properly coordinated is usually vested in a New Products Department or Committee reporting directly to top management.

Market research is a basic tool used in all stages of new product appraisal and development work. A new product should never reach the market development stage without preliminary market investigation. Furthermore, market research specialists also take part in the collecting and analyzing of facts during the market development stages, and should participate in setting up the final program for large scale commercialization. For this reason, many organizations include a market research function in market development activities.

Opportunities for improving company performance abound during market development phases. Preliminary screening by the New

*Paper presented at 34th annual convention of the Association of American Soap and Glycerine Producers, New York, Jan. 25.

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NOW YOU CAN ENJOY THE PROFIT-PACKED BENEFITS OF PRESSURIZED-PACKAGED PRODUCTS—THANKS TO FULD BROTHERS' QUALITY-CONTROLLED

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Products and Application Research groups, often with the help of outside consultants and potential customers, cuts down on the cost of that particularly valuable investment, time – time required to develop processes, costs, application data and markets; time to train operators; time to obtain full scale production.

Product Evaluation

Market development starts with a product and hopes it can find profitable markets. Some of the criteria for evaluation of this market potential are: (1) Intense interest to sales personnel; (2) large, assured, expanding market; (3) good cost-profit ratio; (4) problems solvable within reasonable time.

Few new products have a chance of measuring up to all these criteria, at least without doubt being raised. For example, a large market for a potentially profitable specialty may be a very small market for a commodity type item.

The odds against an idea for a new product attaining commercial success in the form in which it is first conceived range from, perhaps, a thousand-to-one down to fifty-to-one. A product given to the market development group for study probably should have odds of no more than ten-to-one against it. After the market development group has evaluated its potential, the product should survive for transmission to the regular sales department only if the chances for ultimate commercial success are one-to-one or better.

In the long run, the most important products of a company are those which produce the highest net profit. The market development group therefore works on the premise that the most promising projects have no value unless they are carried through to profitable commercial reality. It is the group's dual responsibility to determine the best routes to successful commercialization, and to recommend elimination of products showing low profit potentials.

Here are some of the many factors to be considered in product evaluation:

Physical and chemical properties;
Specifications;
Storage and shipping;
Raw material factors;
Product and processing costs;
Distribution methods and costs;
Prices and profit margins;
Uses and expected volume;
Competitive offerings;
Character, number and locations of potential customers;
Advertising and trademarks;
Patent and legal situations;
Possible future developments.

Development Schedule

How any particular market development group may organize its efforts and schedule depends primarily on internal factors within a given company organization. The most important key to success is a soundly conceived and carefully developed time schedule of the work to be accomplished. Coordination of the activities of marketing research, applied and use research, technical service, sales promotion, patent, process development and field evaluation groups is essential. Each group should have a voice in developing the schedule, so that there will be a commitment to complete a specific job in a given time. New product development work requires teamwork of a highly organized nature.

Many details of procedure are the result of previous experience. For example, initial sampling for outside evaluation is usually carried out on an extremely selective basis. Advertising and publicity are rarely employed in the early stages. Individual follow-up on virtually all samples should be customary practice. Progress in sales and process development should be continuously reviewed so that indicated changes in program schedules can be made with a minimum of delay.

The nature of a firm's existing line determines to a large extent the types of products the market development group can bring to commercial success quickly. Today's emphasis on developing products which fill specific needs of known customers contrasts with yesteryear's emphasis on finding new and often unsuspected markets for new products. Planning today is based on the market rather than on the product, on the customer's needs rather than on the producer's needs or wishes. One of the interesting results of this change is the discovery of unsuspected new customers in familiar fields.

Another outcome of this careful study and accelerated program of market development is the growing recognition of the need to take more, rather than less, time to do research and development work on certain programs. Some projects envision products for markets that are as yet only a gleam in the prospective father's eyes. These permit the market development group to employ its talents on both long range and short range programs – the programs that take only four to seven years from test tube to market and those that take ten to fifteen years to insure company longevity. Both jobs demand the same basic market development techniques mentioned at the beginning of this paper; collect the facts, evaluate the product and market, analyze, and submit a program and recommendations.■

—★—

FPBAA Re-elects Forsberg

D. A. Forsberg, president, Forsberg Paper Box Co., Madison, Wis., was re-elected president of the Folding Paper Box Association of America, Chicago, recently.

New members of the association's executive committee are W. W. Fitzhugh, Jr., president, New Haven Board & Carton Co., New Haven, Conn.; and E. B. Wall, vice-president, Federal Paper Board Co., Bogota, N. J.

Continuing as members of the executive committee are Herbert C. Bernard, Shuttleworth Carton Co., New York; Charles Ruble, Sr., Standard Paper Box Co., Los Angeles; Leo H. Schoenhofen, Container Corp. of America, Chicago; and C. B. Stauffacher, Continental Can Co., New York.

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packaging notes

Roy Hazel-Atlas Manager

Lamar D. Roy, Jr., has been appointed district sales manager in Louisville, Ky., for the Hazel-Atlas

Lamar D. Roy, Jr.

Glass division of Continental Can Co., New York, it was announced recently.

Prior to his appointment, Mr. Roy had been sales manager for the Girdler Process Equipment division of the Chemetron Co., Louisville.

He maintains offices at 651 Grade Lane, Louisville.

—★—

Brockway Moves N.Y. Office

Brockway Glass Co., Brockway, Pa., has moved its New York district office to 320 Park Ave., it was announced recently. Combined at the new quarters will be the sales and service personnel of Brockway Glass and its subsidiaries: Demuth Glass Works, Inc.; Tygart Valley Glass Co.; Celluplastics, Inc.; the plastics division and the export division.

—★—

New O-I West Coast Plant

Construction of a 305,000 square foot glass container plant near Tracy, Calif., was announced recently by Owens-Illinois Glass Co., Toledo, O. The furnace, forming and lehr sections of the plant will be of galvanized iron construction, and the remainder will be built by the new concrete tilt-up method.

—★—

Heekin in Plastics

Heekin Can Co., Cincinnati, recently acquired the injection molding facilities of American Can Co., New York, located at West Pittsburgh, Pa. The new operation will be known as the Pittsburgh Plastics division of Heekin Can Co.

—★—

Colton West Coast Branch

A new west coast branch located at 9426 Santa Monica Blvd., Beverly Hills, Calif., has been formed by the Arthur Colton Co., Detroit. W. A. Doepel, associated with the company in Detroit for the past nine years, has been named branch manager.

"Pain Extinguisher," a novel plastic polyethylene squeeze bottle in the shape of a miniature fire extinguisher, is being used by Norwich Pharmacal Co., Norwich, N. Y., for marketing its new liquid antiseptic pain reliever, "Unguentine First-Aid Spray." The bottle, supplied by Wheaton Plastics Co., Mays Landing, N. J., contains 2¾ ounces of medication for the treatment of cuts, scrapes and burns and retails for 98 cents.

Ferguson to Central Can

Central Can Co., Chicago, recently appointed L. M. Ferguson as its west coast representative. He

L. M. Ferguson

will be headquartered at 301 Rutherford Drive, Dahville, Calif.

In conjunction with Mr. Ferguson's appointment, the establishment of two west coast warehouse facilities, which will stock a complete line of steel shipping pails and specialty cans, was also announced. One warehouse, to serve the Bay area, is located at 4001 Hollis St., Emeryville 8; the other, for southern California, is at 4210 Charter St., Los Angeles.

—★—

New A-H Division Officers

Anchor Hocking Glass Corp., Lancaster, O., recently announced new addresses for its New Orleans and San Francisco package division display and sales offices. The New Orleans office has been moved to 3200 St. Bernard Ave., Suite 409, New Orleans 19. The San Francisco office is now located at 550 California St., San Francisco 4.

J. L. Murphree, Jr., is district sales manager for the New Orleans territory, and E. L. Superka is the district sales manager at San Francisco, assisted by L. E. Holiss, H. E. Kennedy, L. J. Mc-

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LIQUIDS...
filled in metal, glass or *plastic* in any size from 2-ounce containers to 55-gallon drums.

And when your products must be sent to common destinations in different types of packages, Peterson can do all the filling and, then, combine the various types into dollar-saving single shipments. For complete details, write, wire or phone...

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Cormick, H. W. Pell and A. R. Scott.

—★—

New Knox Plant Opened

Knox Glass Co., Knox, Pa., recently opened a new multi-million dollar plant at Forest Park, approximately one quarter mile southeast of Atlanta, Ga. The opening was attended by Dr. Arthur W. Wishart, president of the company, and civic and business leaders.

Robert S. Simpson has been named manager of the 285,000 square foot plant, facilities of which include two glass melting furnaces with a daily capacity of over 200 tons, a batch plant, annealing lehrs or "curing ovens," storage and shipping areas, garages and offices. A railroad siding at the plant will handle the equivalent of 10 railroad cars of raw materials and finished products daily.

The fully automated plant is said to contain the latest type of inspection devices and testing equipment. The plant will at first produce flint or plain glass, and amber glass. Knox Glass, Inc., produces glass containers for household and industrial chemical specialties; medicines, toiletries and cosmetics and other products.

—★—

New Imco Plant

Imco Container Co., a division of Rexall Drug and Chemical Co., Los Angeles, recently opened a 50,000 square foot plant in Jeffersonville, Ind., for the production of polyethylene containers. The new unit brings the total number of Imco facilities to seven.

B. L. Bolin

B. L. Bolin has been named plant manager of the new facility. Mr. Bolin, with Imco since 1954, was previously supervisor of the molding department in Kansas City.

New Jeffersonville, Ind., plant of Imco Container Co.

—★—

FPBAA Names Directors

Recently named directors-at-large of the Folding Paper Box Association of America, Chicago are:

Cameron Clark, Jr., Warner Brothers Co., Bridgeport, Conn.; Daniel Hout, Jr., Michigan Carton Co., Battle Creek, Mich.; Robert D. James, Consolidated Paper Co., Monroe, Mich.; Fred W. Kewell, II, Western Paper Box Co., Hayward, Calif.; Byron H. Lengsfield, Jr., Lengsfield Brothers, Inc., New Orleans, La.; Donald A. Snyder, Marathon—Div. of American Can Co., Menasha, Wis.; Paul Strange, Jr., John Strange Carton Co., Menasha, Wis.; W. S. Stuhr, United Board & Carton Corp., New York; E. B. Wall, Federal Paper Board Co., Bogota, N. J. and Richard J. Walters, Diamond National Corp., New York.

National directors are: W. J. Alford, III, Alford Cartons, Ridgefield Park, N. J.; E. J. Bonville, Robertson Paper Box Co., Montville, Conn.; A. W. Buchanan, F. N. Burt Co., Buffalo, N. Y.; R. F. Burroughs, Sr., Trenton Folding Box Co., Trenton, N. J.; W. W. Fitzhugh, Jr., New Haven Board & Carton Co., New York; D. A. Forsberg, Forsberg Paper Box Co., Madison, Wis.; Arthur L. Harris, Mead Packaging, a division of Mead Corp., Atlanta, Ga.; Charles Ruble, Sr., Standard Paper Box Corp., Los Angeles; Leo H. Schoenhofen, Container Corporation of America, Chicago and Charles B. Stauffacher, Continental Can. Co., New York.

New Coder from Kiwi

Kiwi Coders Corp., Chicago, has announced the production of automatic machines for imprinting set up and filled corrugated shipping cases on conveyor lines. This equipment is motor driven and available in eight models.

The cases can be automatically printed on both sides, turned, printed on both ends and turned again, at any variable speed up to 50 cases per minute, the company states. The cases can weigh up to 70 pounds each.

—★—

Hoskins Colton Manager

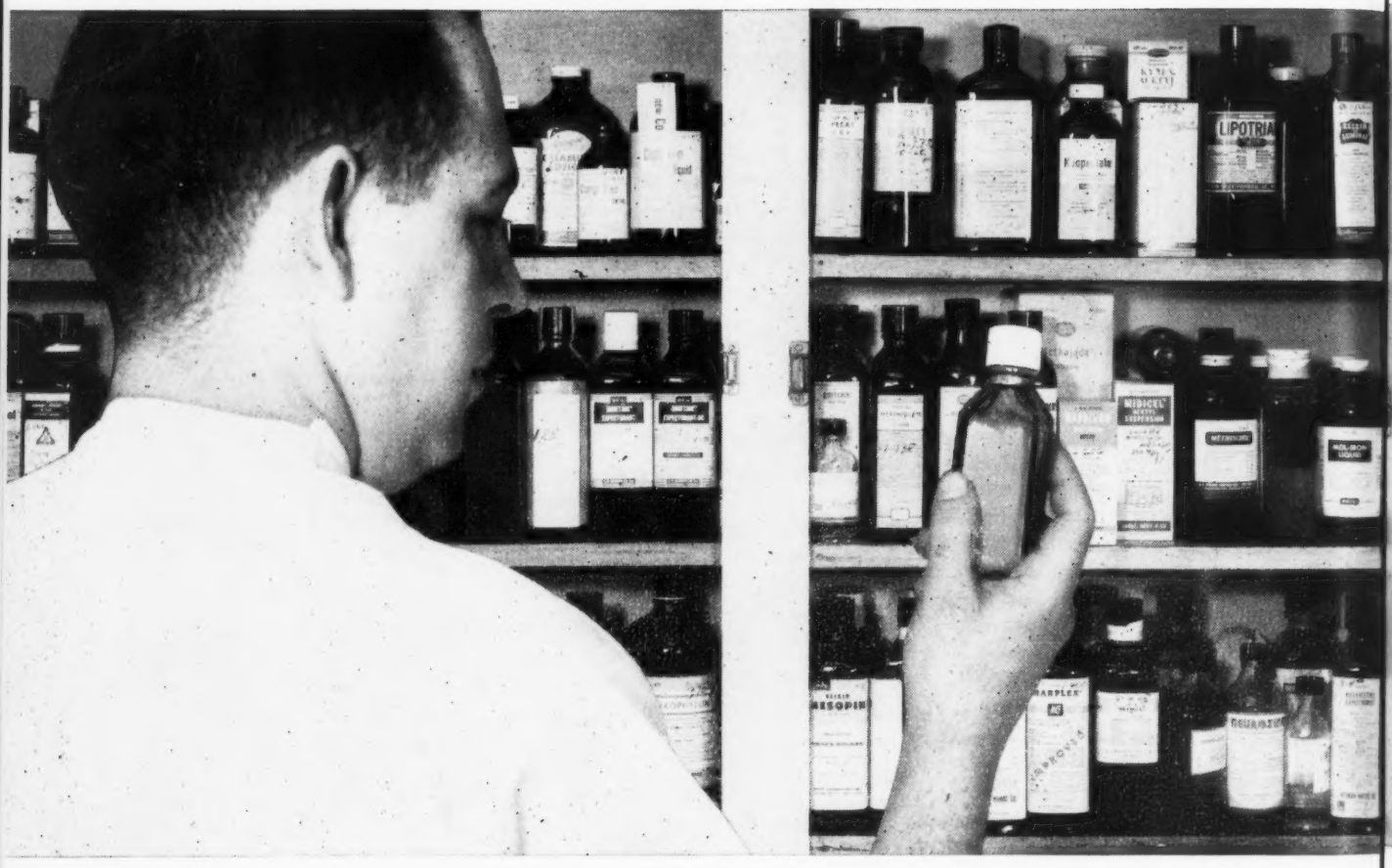
Appointment of John W. Hoskins as Chicago branch manager for Arthur Colton Co., Detroit, was announced recently. Mr. Hoskins directs the sales staff operations for seven midwestern states from the firm's branch office at 5807 W. Diversey St., Chicago. He was formerly eastern sales manager of the F. B. Redington division of Crompton & Knowles Packaging Corp., Holyoke, Mass.

—★—

Outlet for German Firm

Kautex Machines, Inc., Germany, recently purchased an 11,000 square foot modern building in Linden, N. J., to be used as a sales and distribution point and as a demonstration center, for its plastic forming machines. The machines are used in forming plastics into detergent bottles, perfume containers, and other products.

BROCKWAY VISION IN GLASS



Pharmaceutical protection begins with these pure bottles

No other material matches Brockway amber glass in protecting valuable pharmaceuticals. And no other material emphasizes quality pharmaceuticals as well as glass . . . BROCKWAY VISION IN GLASS. Eye-catching glass flatters products it protects . . . prods fussy shoppers, makes them satisfied customers who *look* for pharmaceuticals in glass containers. (Just ask the pharmacy that stocks vitamins, or the mother who buys them.) Glass is the traditional protective container, the traditional sales producer.

BROCKWAY GLASS

COMPANY, INC., Brockway, Pennsylvania
Sales Offices in Principal Cities

SUBSIDIARIES: Demuth Glass Works, Inc., Parkersburg, W. VA.
Tygart Valley Glass Co., Washington, Pa.
Celluplastics Inc., Newark, N. J.

Brockway, first name in containers for:

foods
prescription ware
beer
plastic containers
pharmaceuticals and proprietaries
beverages
liquors
vials and tubing

Integrity in glass since 1907

Elected White Metal Pres.

Stanley M. Rumbough, Jr., has been elected president of White Metal Manufacturing Co., Hoboken, N. J., it was announced recently. He succeeds Hubert Richter, founder in 1913, of White Metal, who will continue as a director.

Stanley W. Rumbough, Jr.

Mr. Rumbough, associated with White Metal since 1945, is also president of Rumbough Co., a business development firm. White Metal Manufacturing Co., with plants in Hoboken and Hawthorne, N. J., and Indianapolis, Ind., is a major producer of collapsible metal tubes, capacitor cans, and aluminum impact extrusions.

★

Glass Shipment Record

Domestic shipments of new glass containers reached an all-time high in 1960, almost a billion units higher than the previous record, according to "Glass Containers — 1960," a 64-page industry fact book just released by the Glass Container Manufacturers Institute, 99 Park Ave., New York 16.

The year-end total of 154,685,000 gross (22,274,640,000 units) of new glass containers shipped during 1960 was up 3.1 per cent over the 1959 total of 150,051,000 gross (21,607,344,000 units), the GCMI booklet reports. The 1960 edition of the booklet, issued annually, includes Department of Commerce figures for 1960, as well as annual shipment figures by end-use category for the period from 1935 to 1960 inclusive.

★

Two New O-I Plastic Plants

Owens-Illinois Glass Co., Toledo, O., will begin producing blown plastic bottles at new facilities in St. Louis, Mo., and San Jose, Calif., by mid-year, Carl R. Megowen, O-I president announced recently.

Blow molding equipment designed, engineered and manufactured by O-I will be installed in a leased building in St. Louis and at an existing plant in San Jose. The San Jose plant of O-I's Pacific Coast division manufactures plastic and metal closures and other plastic items. Additions to the plant more than doubled its size last year.

The two new plants bring to 10 the number of O-I facilities producing high-density polyethylene containers, which have captured a majority of the liquid detergent market. In addition to liquid detergents, the blown plastic bottle is being used by makers of household bleach, shampoos, cosmetics and various household chemical specialties.

★

New Space Saver Bottles

Olympic Plastics Co., Los Angeles, has introduced a new line of rectangular linear polyethylene bottles designed to save space. The unbreakable bottles, in sizes 1, 2, 4, 8, 16, and 32 ounces, are molded in amber or natural polyethylene as a standard item.

★

Imco Moves Chicago Office

Imco Container Co., a division of Rexall Drug and Chemical Co., Los Angeles, has moved its Chicago sales office into newer and larger quarters, at 711 Devon Ave., Park Ridge, Ill., it was announced recently. The office is under the direct supervision of Frederick L. Kocher, vice-president.

Also announced was the recent opening of a new manufacturing plant in Jeffersonville, Ind., bringing the total number of Imco facilities to seven.

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or
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Is your product second best with the consumer? Perhaps the cause is inferior valves which result in defects creating consumer resistance to repeat sales. Eliminate lost product sales caused by faulty valves. Why not play safe, it costs no more to use the aerosol valve which has quality built-in from design to delivery.

Use Precision—it's a sure way to better your position in the market place.

PRECISION VALVE CORPORATION
700 NEPPERHAN AVENUE, YONKERS, NEW YORK

Selig Co., Atlanta, Ga., recently introduced three companion cleaning products, all packaged in quart and gallon polyethylene bottles. "Vorex" porcelain cleaner, formulated to remove rust stains and scale, is designed for use in septic tanks. "Vixol" emulsion bowl cleaner, a concentrated combination cleaner, disinfectant and deodorant, can be applied by mop or by Selig's "E-Z-Ap" applicator. "Swish" liquid drain pipe cleaner, is non-corrosive and odorless.

Two new linear polyethylene packages have been adopted for its blue "Creme Detergent." Time Chemical, Inc., Chicago, announced recently. A case of four, one-gallon polyethylene containers of "lotionized" dishwashing detergent is claimed to weigh 36 pounds and occupy 30 per cent less floor space than glass. In addition to the gallon size, Time has also adopted new, white, opaque, silk screened quart containers of linear polyethylene for "Creme Detergent."

WHAT'S NEW?

"Waxtra," a new self-polishing floor finish that includes polymers and waxes in its formulation, is now being marketed by S. C. Johnson & Son, Inc., Racine, Wis., through its sanitary supply distributors. The product is described by the maker as "a new, extra tough floor finish that provides both the heavy duty performance of natural waxes with traffic resistant toughness of man made polymers." "Waxtra" is packaged in five, 12, 30 and 55 gallon containers.

A window cleaner, the first in what is expected to be a full line of "Spraycare" aerosol household products was introduced recently by Julius Kupfer Industries, Inc., Elmhurst, N. Y. For use on all glass, ceramic and plastic surfaces, "Spraycare" window cleaner is packed in a 16-ounce, nibbed dome container of Continental Can Co. The product is dispensed through a mechanical break-up valve supplied by Precision Valve Corp., Yonkers, N. Y. To retail for 69 cents each.

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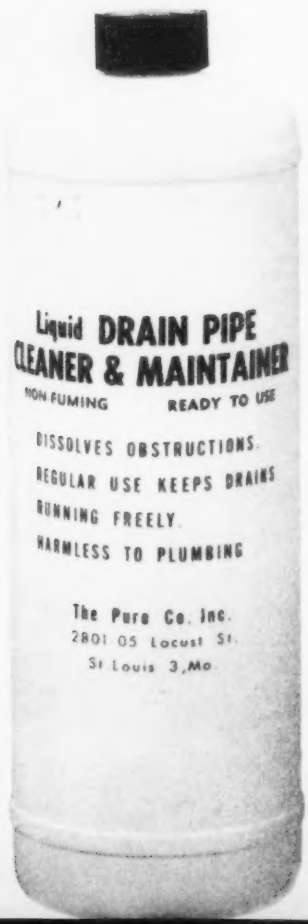
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Captions: Facing Page

New "Safe-Guard Mothproofing Concentrate," for addition to rug shampoo, has been introduced by Duo-Dellay Products, Baltimore. Mothproofing ingredients are shampooed into rug fibers and penetrate to backing, contacting living organisms including eggs and larvae.

"Instant Spray Starch," in an economy twin-pak, has been introduced by Glamorene, Inc., Clifton, N. J. Product is packaged in two, 15-ounce polyethylene bottles, with a fine mist sprayer that can be used with both bottles. Glamorene "Instant Spray Starch," containing "Nulite" brightener, is said to starch and dampen instantly, and can be used with either steam or dry irons. Polyethylene bottles by Plax Corp.; sprayer by Calmar, Inc.

New "Misty Garden" spray cologne of Fuller Brush Co., Hartford, Conn., is packed in three ounce coated glass bottle, which with flared, all-plastic cap, is supplied by Owens-Illinois Glass Co., Toledo. Bottle is equipped with a B18F valve and mechanical break-up actuator, supplied by V.C.A., Inc., Bridgeport, Conn.

"Liquid Drain Pipe Cleaner and Maintainer," recently introduced by Puro Co., St. Louis, is said to dissolve obstructions caused by grease, hair, paper, matches, rags and other organic matter. Nonfuming, product is claimed not to injure plumbing. Packed in plastic quarts, 12 to a case, "Liquid Drain Pipe Cleaner and Maintainer" is also available under private label with the distributor's name silk screened on package.

Captions: This Page

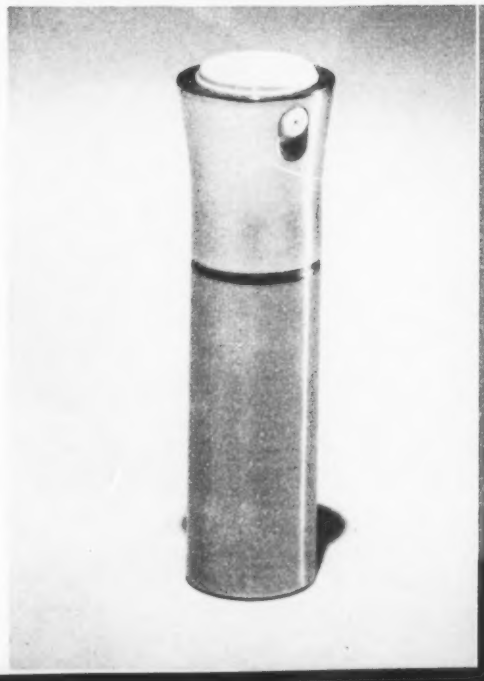
"Swish Aerosol Elektrokleen," an aerosol cleaning compound is now equipped with a removable polypropylene extension tube for hard-to-reach places, Montgomery Chemical Co., Jenkintown, Pa., announced recently. Product is recommended for cleaning electrical equipment and components, typewriters, power tools, and fans. Packaged in a 16 ounce can, 12 to a case.

"Down the Drain", a new type concentrated liquid drain pipe opener, recently was introduced by James Varley & Sons, Inc., St. Louis. Product is designed to dissolve grease, scum, fats, oils, and solid accumulated organic matter rapidly and efficiently, without harming pipe fittings or fixtures. Available in plastic quart containers.

A new, long range, "Jet Stream" insecticide, for controlling bees, wasps and hornets, has been added to the line of aerosol products manufactured by Sprayway, Inc., Chicago. The push-button dispenser is said to make it possible to direct an insecticide stream into the nest of winged pests from a distance of 12 feet.

An 18mm trigger tip aluminum package equipped with a B18F metered valve, has been introduced by V.C.A., Inc., Bridgeport, Conn. The trigger tip assembly eliminates the need for an overcap, while protecting against accidental discharge. The 1/4 ounce tube is adaptable for screening and other decorations, and the polyethylene actuator button and nozzle insert can be molded in any color desired.

"Moon Glow" industrial and household aerosol deodorizer, was introduced recently by James Varley and Sons, Inc., St. Louis. Added to the company's "Glyco-Mist" line of air sanitizers and deodorizers, "Moon Glow" is claimed to eliminate odors at their source. Packaged in 16-ounce aerosol containers, 12 to a case.



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new trade marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Sta-bil — This for chemical additive to gasoline to prevent formation of gum and varnish in fuel systems, sold in dispenser containers. Filed July 15, 1959 by Knox Soap Co., Chicago. Claims use since Sept. 2, 1958.

Textarch — This for cold water additive laundry starch. Filed May 3, 1960 by Morningstar-Paisley, Inc., New York. Claims use since April 17, 1959.

Cefro — This for rat, mouse and rabbit repellent. Filed Aug. 9, 1960 by Virginia-Carolina Chemical Corp., Richmond, Va. Claims use since May 11, 1960.

Skipper's Aide — This for cleaning compound for removing dirt, oil and grease, from the decks, hulls and bilges of boats. Filed April 4, 1960 by Schaefer Chemical Products Co., Saginaw, Mich. Claims use since March 23, 1959.

Fortune — This for synthetic detergent for household cleaning and laundry use. Filed April 28, 1960 by Procter & Gamble Co., Cincinnati. Claims use since March 4, 1960.

Whit-kleen — This for detergent cleaner solution for general maintenance cleaning of painted metallic or ceramic surfaces. Filed June 6, 1960 by Whitfield Chemical Co., Detroit. Claims use since Aug. 13, 1956.

Pink Luster — This for combination cleaner and polish. Filed Oct. 24, 1960 by Continental Chemical Co., Cleveland. Claims use since Aug. 30, 1960.

Wincoat — This for no-buffing, anti-slip floor finish. Filed Nov. 15, 1960 by Windsor Wax Co., Hoboken, N. J. Claims use since July 20, 1953.

Win-Gard — This for floor wax with germicidal properties. Filed Nov. 15, 1960 by Windsor Wax Co., Hoboken, N. J. Claims use since May 3, 1960.

Turgasept — This for deodorant for industrial and/or household use. Filed Nov. 3, 1958 by Doho Chemical Corp., New York. Claims use since April 30, 1958.

Crawlz No More — This for chemical gelatinous compound that traps crawling insects and stops climbing rodents. Filed Nov. 16, 1959 by National Bird Control Laboratories, Skokie, Ill. Claims use since Nov. 3, 1959.

Algimaster — This for chemical compounds suitable for the destruction of algae in water. Filed June 9, 1960 by Michigan Chemical Corp., St. Louis. Claims use since May 23, 1960.

Downy — This for fabric softener. Filed Aug. 22, 1960 by Procter & Gamble Co., Cincinnati. Claims use since Aug. 1, 1960.

Onyx-ol — This for liquid detergents sold in bulk to industrial users. Filed April 15, 1960 by Onyx Chemical Corp., Jersey City, N. J. Claims use since 1930.

Summit — This for permanent anti-freeze. Filed Aug. 7, 1959 by Stevens Co., South Bend, Ind., and Sovereign Oil Co., Chicago (joint applicants). Claims use since June 15, 1959.

Mon-o-dine — This for germicidal disinfectant in liquid form for use on dairy equipment. Filed Sept. 24, 1959 by Monarch Chemicals, Inc., Minneapolis, Minn. Claims use since April 1956.

Banerin-58 — This for cereal bait in pellet form for rodent control. Filed Feb. 2, 1960 by Dixi Chem Co., Chattanooga, Tenn. Claims use since Aug. 15, 1958.

Mon-o-san — This for dairy equipment cleaner and sanitizer in powdered form. Filed Sept. 24, 1959 by Monarch Chemicals, Inc., Minneapolis, Minn. Claims use since June 1957.

Old Holland — This for hair shampoo. Filed Dec. 30, 1959 by Silver-K Corp., Manchester, N. H. Claims use since Oct. 10, 1959.

Sunburst — This for detergents for use on automobiles, chrome cleaner, and bug, rust, spot and stain remover. Filed March 10, 1960 by Sunburst Kar Kleen Sales, Inc., Madison, Wis. Claims use since Aug. 14, 1959.

Tele-Scoraser — This for chemical compound for cleaning score sheets. Filed March 24, 1960 by Bell Chemical Co., Dallas, Tex. Claims use since Jan. 21, 1960.

Enco — This for detergents for household and industrial use. Filed May 6, 1960 by Humble Oil & Refining Co., Houston, Tex. Claims use since Oct. 19, 1959.

Whitsol — This for detergent solvent cleaners for removal of oil, grease, drawing and buffing compounds for aluminum and other metals. Filed July 13, 1960 by Whitfield Chemical Co., Detroit, Mich. Claims use since May 5, 1960.

Blossom — This for sudsing cleaner, cleanser and detergent. Filed Sept. 9, 1960 by Procter & Gamble Co., Cincinnati. Claims use since Feb. 4, 1960.

National Easy Life — This for all purpose liquid wax for floors and other purposes. Filed Aug. 8, 1960 by National Laboratories, Inc., Chicago. Claims use since May 6, 1960.

Poolite — This for chemicals and chemical compositions for use in swimming pool maintenance, algae control, and control of fungus which causes athlete's foot. Filed Aug. 30, 1960 by Patterson Chemical Co., Cleveland. Claims use since Sept. 1, 1959.

Termibar — This for liquid insecticide. Filed June 8, 1960 by Bird & Son, Inc., East Walpole, Mass. Claims use since May 5, 1960.

Kwik-Tox — This for insecticides and fungicides. Filed Aug. 18, 1960 by Miller Chemical & Fertilizer Corp., Baltimore. Claims use since May 1, 1939.

Easy Open — This for liquid drain opener. Filed Oct. 29, 1959 by F. Del Greco Sales, Inc., Akron, Ohio. Claims use since Oct. 9, 1959.

Milvern — This for soaps for use on woolens, nylons, silks, cottons, and other fine fabrics and garments. Filed Jan. 14, 1960 by Milvern Co., Beverly Hills, Calif. Claims use since Jan. 6, 1960.

Enstaph—This for soap powder with germicidal properties to be used in hospitals and like institutions. Filed Jan. 29, 1960 by Swift & Co., Chicago. Claims use since Oct. 30, 1958.

Jet-strip — This for paint and protective coating remover. Filed May 6, 1960 by Purex Corp., Ltd., South Gate, Calif. Claims use since March 17, 1960.

Protam—This for liquid detergent for washing and cleaning purposes. Filed Oct. 24, 1960 by Protam Processes Inc., New York. Claims use since July 1, 1950.

Brytene—This for floor polish. Filed Oct. 14, 1960 by Franklin Research Co., Philadelphia. Claims use since April 25, 1960.

Pennzoil — This for household cleaning fluid. Filed Sept. 30, 1960 by South Penn Oil Co., Oil City, Pa. Claims use since Aug. 12, 1940.

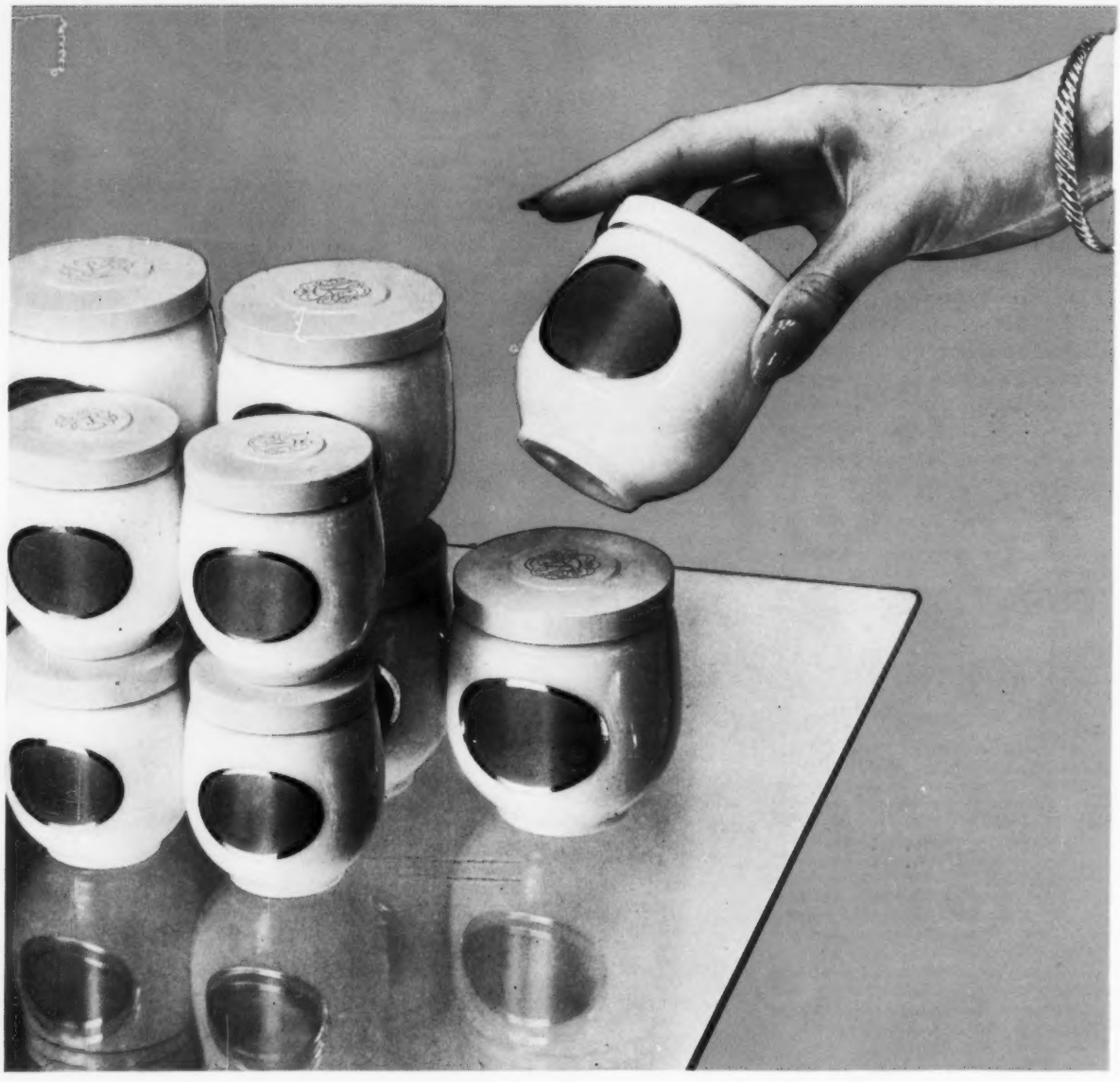
Surgidine — This for surgical soap. Filed Oct. 26, 1960 by Continental Laboratories, Inc., Palo Alto, Calif. Claims use since May 24, 1960.

E-Z — This for janitor's supplies—disinfectants, deodorants, and bactericides. Filed July 2, 1958 by E-Z Janitor Supply Co., Phoenix, Ariz. Claims use since March 24, 1956.

Dri-Die—This for insecticides. Filed Oct. 30, 1958 by W. R. Grace & Co., New York. Claims use since Oct. 15, 1958.

Road King — This for anti-freeze. Filed Feb. 29, 1960 by Dayco Corp., Dayton, O. Claims use since Jan. 21, 1960.

Hy-Pro — This for chemical composition for use as a bleach, germicide, disinfectant, and deodorant. Filed June 6, 1960 by Crown Products Co., Los Angeles. Claims use since June 16, 1948.



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Formulations up to date

Aerosol Space Sprays

By John Odeneal*,
Fairfield Chemicals
Food Machinery & Chemical Corp.
New York

AEROSOL insecticides, a subdivision of the overall category of pressurized space insecticides, initiated pressurized packaging 18 years ago. Today a complete range of propellant-dispensed products is available for the control of flying insects. This range can be divided into two main spray groups:

- The aerosol space spray, defined as a spray in finely divided form, 80 percent or more individual particles of which have a mean diameter of 30 microns or less. No particle in such a spray has a diameter of more than 50 microns.
- The pressurized space spray, which delivers a mist intermediate to the aerosol type or a residual insecticide spray. Particles of a pressurized space spray are generally above 50 microns and have a mass mean diameter of 25 microns.

A crude rule of thumb in the trade is to define aerosol insecticides according to the percentage of fluorinated hydrocarbon propellant used. Those using above 80 to 85 per cent of a 50-50 mixture propellants are classified as aerosols, those using less are classified as pressurized sprays.

During the first few years of pressure-dispensed insecticides, the aerosol type was used exclusively. But with the development of superior valves and formulating systems, the pressurized type of spray has received increasing attention. In recognition of this, the Chemical Specialties Manufacturers Association has developed during the past two or three years a revised C. S. M. A. Aerosol and Pressurized Space Spray Insecticide Test Method for Flying Insects. This test method, which takes into consideration both methods of control, has now been completed.

New Test Method

The new test method first spells out the differences between aerosol and pressurized sprays. Patterning itself after the Official Test Insecticide, it then establishes a grading system for aerosol and pressurized products. This grade may be indicated on the container label to indicate to consumers the performance characteristics of the product.

This test method and grading system were adopted by the Board of Governors of C. S. M. A. on October 5, 1960, and supersede the previous C. S. M. A. Aerosol Test Method for Flying Insects. The revised test method has been published in the December, 1960 proceedings of the 46th annual meeting of the C. S. M. A.

The method describes the means by which both aerosol and pressurized sprays may be evaluated. The descriptive word "aerosol" may only appear on pressurized containers which emit aerosol-size particles, and the performance of which at 3 grams/1000 cu. ft. meets the standards of the method.

Pressurized sprays being tested must be no less effective in biological performance (15-minute and 24-hour mortality) than the Official Test Aerosol (O. T. A.) when tested at no more than twice the O. T. A.-specified dosage.

Once a pressurized spray has been tested, its grade may be designated. An aerosol or pressurized spray is Grade A if it equals or exceeds the O. T. A., when compared at 3 grams $\pm$ 0.5 grams/1000 cu. ft. Grade B is reserved for pressurized sprays equalling the O. T. A., when tested at 6.0 grams $\pm$ 0.5 grams/1000 cu. ft.

With the adoption of this grading system, it is hoped that manufacturers will incorporate grade designations on product labels, in order that these designations will eventually become an integral part of labeling, as they have with liquid space spray insecticides.

To the consumer, a 16-ounce pressurized formulation, whether it contains an aerosol or a pressurized spray formulation, looks and operates the same way. However, the grade designation is even of more importance in pressure-dispensed products than with liquid sprays. As can be seen from the above definition of a Grade B pressurized spray, twice as much material is required as for Grade A. Therefore, a Grade B product in a 12-ounce container, for instance, actually will treat only one-half as much space as a Grade A insecticide.

The C. S. M. A. Aerosol and Pressurized Space Spray Insecticide Test Method for Flying Insects used to evaluate aerosols is considered to be accurate within about five points, plus or minus. Such a range appears to be adequately covered by perhaps one-half dozen formulations which would spread over whatever type of performance a manufacturer might need.

However, the requirements by household insecticide manufacturers are highly varied as regards odor, safety, performance and cost, as few of the hundreds of manu-

*Paper presented May 16, 1961 during 47th midyear meeting, Chemical Specialties Manufacturers Assn., Chicago.

facturers today use the same aerosol formulation.

Recent Developments

Since the introduction of pressurized insecticides in 1943, and their general public acceptance beginning between 1950 and 1952, very few advances in toxicants for these dispensers have been made. At the present time, both knockdown and kill can be achieved by the use of pyrethrins, allethrin and synergists. Primarily knockdown characteristics can be imparted to the formulation by the use of "Lethane" [1] and "Thanite"; [2] kill is contributed by such toxicants as DDT, methoxychlor, "Strobane," [3] "Perthane," [1] malathion, toxaphene, and ronnel. Commercial aerosol formulations are prepared in hundreds of varying combinations from these. Clearly described limitations and common dosages employed are described in Interpretation #15 of the U. S. Department of Agriculture.

Toxicant manufacturers require a number of years to improve aerosol and pressurized space sprays for flying insects by the introduction of new toxicants. Due to the many limitations on the Federal acceptance of new insecticides, very little can be done to develop new toxicants specifically for insect control by aerosol and pressurized sprays. Toxicants are developed initially for the agricultural market, and then adapted for aerosol use.

This doesn't mean that no short term progress has been made in this area of insect control. To the contrary, considerable advances have taken place, originating primarily with the manufacturers of valves, propellants and dispensing devices. In these respects the makers of pressurized insecticides have been able to profit from developments made in other fields, through adaptations of these improvements to their own needs.

John F. Odeneal

For example, it was only when the valve manufacturers began developing low-rate metered units, and mechanical break-up buttons, that new techniques of control became practical. Thus, the metered valve allowed the development of a concentrated aerosol, and tests have shown that performance is primarily determined by insecticide concentration. It is quite possible to dispense one-half gram of highly-concentrated formulas and achieve the same control as with three grams of a weaker formulation.

Valve improvements have led to the packaging in pressure dispensers of a variety of formulations thus enabling treatment of increasingly larger areas. Industrial applications of pressurized insecticide as a result have been improved. Manufacturers can now supply economical units which provide a greater emphasis on the toxicant itself. The buyer spends a smaller proportion of his dollar than before on components.

With the increase of activity in the pressure-dispensing market, container manufacturers have developed a variety of aluminum, plastic and conventional units in a great range of sizes. These provide the insecticide manufacturer with much more choice of product size and shape in tailoring his product precisely for a specific market.

With the development of new types of valves over the last five years, attention has turned to the possibilities of propellants other than fluorinated hydrocarbons. Previously impractical propellants such as nitrogen, carbon dioxide, butane, propane and isobutane – all available as long ago as 1950 – can now be used with these new valves to produce acceptable spray patterns. The variety of mechanical break-up valves and buttons available today reopens the entire field of usable propellants for investigation. Current researches indicate that, in many instances, formulations can be developed at considerable savings without reducting toxicant content, through the use of water and other inexpensive diluents in combination with various propellants. Packaging costs are also favorably affected under such circumstances.

Not all problems, it must be pointed out, have been solved. No commercially successful water-based aerosol insecticide space spray has yet been developed. There remain such matters as corrosion, particle size formation and formulation stability to be dealt with.

Combining several recent advances, aerosols are being used in several of automatic intermittent aerosol dispensing sytems. These do not operate on the conventional standards, calling for a spray of three grams/1000 cu. ft. for insect control. Rather. the concept employed is one of continuous, extremely-low-level toxicant presence on a 24-hours basis. Flying insects in an area thus treated will gradually pick up a dosage sufficient to keep the area clear. This method has been very successful in achieving continuous control of flying insects.

With the present difficulties confronting the introduction of new toxicants able to meet Federal and State regulations, manufacturers of aerosol products cannot

(*Turn to Page* 201)

[1] Registered trade name of Rohm & Haas Co., Philadelphia
[2] Registered trade name of Hercules Powder Co., Wilmington, Del.
[3] Registered trade name of Heyden-Newport Chemical Corp., New York.

contract filling / private label guide

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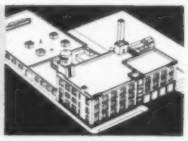

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Food Aerosols...

First session on pressure packaging of food at 21st annual meeting of Institute of Food Technologists, New York. CSMA has booth.

A SESSION devoted to pressurized food products was part of the Institute of Food Technologists' 21st annual meeting, held May 7-11 in New York. Arranged in cooperation with the Aerosol Division of the Chemical Specialties Manufacturers Association, the session consisted of four papers. J. M. Jackson of American Can Co., New York, presided.

Emergence of a fluorocarbon, "Freon C-318," should widen the scope of pressure packaging in the food field — it was predicted in a paper entitled "Food Aerosols with 'Freon C-318' and Nitrous Oxide," by Frank W. Bower, Freon Products Division of E. I. du Pont de Nemours & Co., Wilmington, Del. and Patricia A. Lychalk, Ohio Chemical & Surgical Equipment Co., Division of Air Reduction Co., Madison, Wis. Miss Lychalk read the paper.

Currently, food aerosols are loaded with compressed gases. Nitrogen is commonly used for nonaerated dispensing; carbon dioxide and nitrous oxide, individually, or in combination, serve to dispense foamy food products. However, compressed gases exhibit certain disadvantages in this application, such as diminishing internal container pressure and accidental loss of propellant. Other problems are of an economic nature, since compressed gases permit only a comparatively small amount of product to be pressurized in a container of conventional size.

"Freon C-318," developed by du Pont as a food aerosol propellant, is expected to be cleared by the Food and Drug Administration late in June, Miss Lychalk reported. Propellant C-318, which is octafluorocyclobutane, has a low vapor pressure and is insoluble in the aqueous phase. In the absence of chlorine its taste and odor properties are good.

The new "Freon" being a liquid gas, minimizes the danger of propellant loss and permits the packaging of a larger volume of product in a given container than do the compressed gases. When used in combination, nitrous oxide and the fluoro carbon propellant are complementary in their performance characteristics, according to Miss Lychalk. A series of tests with whipped creams of varying butter fat contents pressurized with nitrous oxide and with a mixture of nitrous oxide and C-318 were described by the speaker. Improved foam stability and texture, color retention, and consistency combined with less "weeping" or drainage were observed in the products loaded with the propellant mixture, Miss Lychalk reported.

"Aerosol Food Products in the Free-Piston Container" was the subject of a paper by Paul W. Hardy, H. T. Hoffman, Jr., and E. Wheaton, of American Can Co., New York. Canco's FP container is capable of dispensing viscous materials in a smooth and even flow, regardless of the position in which the container is held, according to Mr. Hardy, who presented the paper. Accidental venting of propellant and cavitation are eliminated. The FP aerosol separates completely the product from the propellant and dispenses the product without altering its consistency. Its use for icings, spreads and similar viscous food products is envisaged.

The FP package dispenses up to 95 per cent of the product, Mr. Hardy reported. The propellant is nitrogen compressed to 90 to 100 psi. For further details concerning American Can's free floating piston container see *Soap and Chemical Specialties*, April, 1961, p. 24.

Correlation of product viscosity, pressure in the container, and size of the discharge orifice result in an aerosol dispensed as an aerated stream, according to John J. Sciarra, St. John's University College of Pharmacy, Brooklyn, N. Y. Dr. Sciarra spoke on 'Formulation of Self-Agitating Pressurized Food Products." After tracing brief-

(*Turn to Page* 151)

pressure packaging

Du Pont Transfers Two

Robert M. Glover, assistant manager of tetraethyl lead sales and planning in the petroleum

Robert M. Glover

chemicals division of E. I. du Pont de Nemours & Co., Wilmington, Del., is being transferred to the company's Freon Products Division, to become manager of the western sales district, effective September 1, it was reported recently.

At that time, Samuel N. Seely, Jr., now western district manager, will be transferred to the export sales section of the company's dyes and chemicals division as assistant manager. The three divisions make up the sales organization of Du Pont's organic chemicals department.

Mr. Glover, who began his career with Du Pont in 1947 as a petroleum chemicals sales representative, has held various sales assignments, district and regional managerships, and has served in other managerial capacities.

Mr. Seely joined Du Pont in 1930 as a sales trainee in dyes and chemicals, and held a number of positions in export sales in the organic chemicals department, until 1951, when he became assistant manager of the dyes and chemical export section. He was then appointed export manager for the section handling the sale of "Freon" aerosol propellants, and refrigerants, and was appointed in mid-1955, sales supervisor of the

Samuel N. Seely, Jr.

newly established Los Angeles district office. Six months later he was appointed western district sales manager for "Freon" products.

—★—

Hair Spray Package

Aerosol Corp. of the South, Arlington, Tenn., recently introduced an unusual, new "Companion Set" hair spray package containing a 14 ounce size of "Fashionette" hair spray, and a refillable purse size "Fashionette." The purse size can be refilled from the large home-size by pressing the two valves firmly together for about four seconds. The large container is decorated in lavender, gold and black while the purse size is in iridescent lavender.

New "Companion Set" hair spray package of Aerosol Corp. of the South, Arlington, Tenn.

Aerosol Corp. of the South manufactures a complete line of professional beauty products, including "Finishing Touch" hair conditioner, "Regent Instantaneous Polish Remover" and "Nail-Dri."

—★—

New Refund Method

Wholesalers for "Ucon" fluorocarbons, including propellants, in cylinders, can now obtain empty cylinder deposit refunds the same day as shipment through a system recently announced by Union Carbide Chemicals Co., division of Union Carbide Corp., New York. Labeled "Speed-Drafts," the system enables a wholesaler to write himself a check for cylinder deposit refunds. The check, drawn on Union Carbide Chemicals Co., can be desposited in the wholesaler's local bank and credited to his account as soon as the empty cylinders have been shipped.

"Speed-Draft" eliminates having the wholesaler's funds tied up during shipment to and processing at Carbide warehouses. In addition, it allows the wholesaler to have positive control over his cylinder deposits, reduces paper work and eliminates the need for a filler up system until he receives his cylinder deposit money.

Basic to the new system is a combined manifold bill of lading and cylinder deposit refund check. The check, in the form of an envelope, and the bill of lading bear

(*Turn to Page* 151)

Straight from General

ANOTHER FLEET OF PROPELLANT TANK TRUCKS...PACKED WITH "GENETRON®" POWER!

Chemical to you...

All trailers equipped with unloading pumps for customer service; plant scale expedites weighing of full loads and return heels.

Here is part of General Chemical's big new white fleet of "Genetron" propellant tank trucks serving eastern aerosol marketers and fillers.

This equipment is *company-owned* and *operated* to assure the best possible customer service, not only day in, day out, but especially in emergencies when hours count!

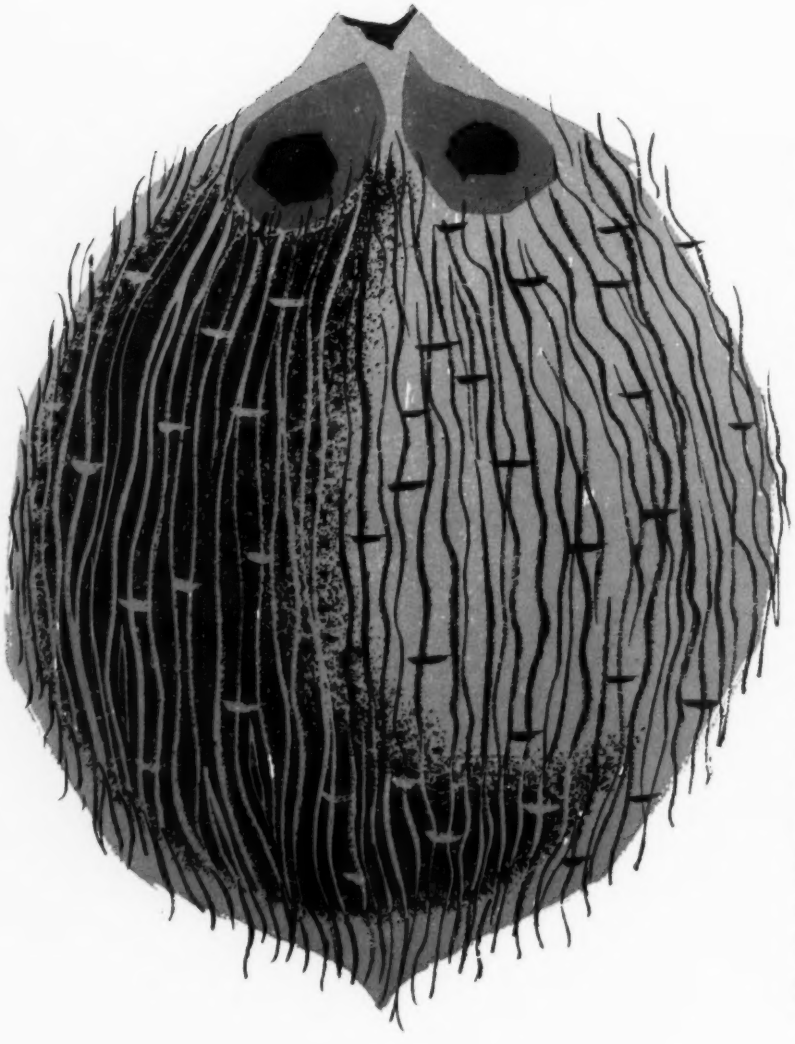
Our own employee drivers are at the wheel, too. Thus, you also get maximum flexibility in deliveries plus close personal attention to your unloading requirements.

Comparable service is offered out of our "Genetron" facilities at Danville, Ill.; Baton Rouge, La.; and El Segundo, Calif. More good reasons why "Genetron" propellants are first choice of so many leading aerosol fillers and marketers coast to coast. If you're not already familiar with "Genetron" propellant quality and service, find out now!

Allied Chemical

GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N.Y.

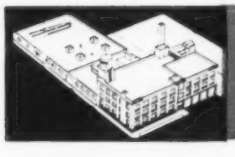


Here's product protection at its best! No dented containers, no leaks, no faulty formulation, no evaporation, no fire hazard. So, if you're in the coconut business, let Mother Nature continue to do your packaging.

But, if you market an aerosol, that's a different story. G. Barr & Company should do your manufacturing. We specialize in private label aerosols exclusively with acres of research, product development, formulation, packaging, storage and shipping facilities to serve you. Hundreds of millions of famous brand name products have been formulated and filled here. Our customers are leaders in their fields. We'd like to have your name with those we serve. May we tell you the complete G. Barr & Company story?

ONLY MOTHER NATURE DOES A BETTER PACKAGING JOB.

G. BARR & COMPANY
Private Label Aerosols
GENERAL OFFICES: 3601 S. RACINE AVE.
CHICAGO 9, ILL.



ACRES OF AEROSOL PACKAGING FACILITIES

(*From Page* 147)

the same code number, said to result in simplified record keeping. The forms are supplied in quantity to the wholesaler, and replenished on request. The return point and the individual cylinder deposit amounts and weights are preprinted on the "Speed-Draft," resulting in quicker calculation of total weight and value, the company states.

—★—

Pennsalt Appoints Ott

Edwin M. Ott has been appointed manager of market planning, Pennsalt Chemicals Corp., Philadelphia, it was announced recently.

"Genetron" aerosol propellants being loaded into these four 15-ton tank trucks at the Elizabeth, N. J. plant of the General Chemical division of Allied Chemical Corp., New York, could activate 250,000 hair sprays, insecticides, or other 12 ounce aerosol products. The tank trucks are part of a new company owned fleet, servicing the East Coast aerosol industry from bulk storage facilities at Elizabeth. Construction is now nearing completion at Elizabeth, for General Chemical's third "Genetron" plant. The division's two other plants are in Baton Rouge, La., and Danville, Ill.

Aerosol Foods

(*From Page* 146)

ly the history of food aerosols which has so far consisted mainly of whipped creams and other aerated products, the speaker concentrated on the "jet pressure dispenser," a development of Continental Enterprises, Inc., Jacksonville, Fla., for which he acted as consultant. Designed to dispense syrups and other products of similar viscosities in an aerated stream for instant dispersion in a liquid medium, this device is described and illustrated in *Soap and Chemical Specialties*, April 1961, p. 22. Dispersion is said to be complete, eliminating the need for agitation and the formation of a precipitate.

"Aerosol Valves for Pressurized Foods" were discussed briefly by W. E. Graham of Clayton Corp., St. Louis, Mo. Correct correlation of valve design and product formulations is a must for a successful product, Mr. Graham pointed out. The form in which the product is dispensed — foam, mist, liquid stream, or spray — depends ultimately on the valve design. Further modifications are accomplished by various types of valve actuators and variations in the size of valve orifices.

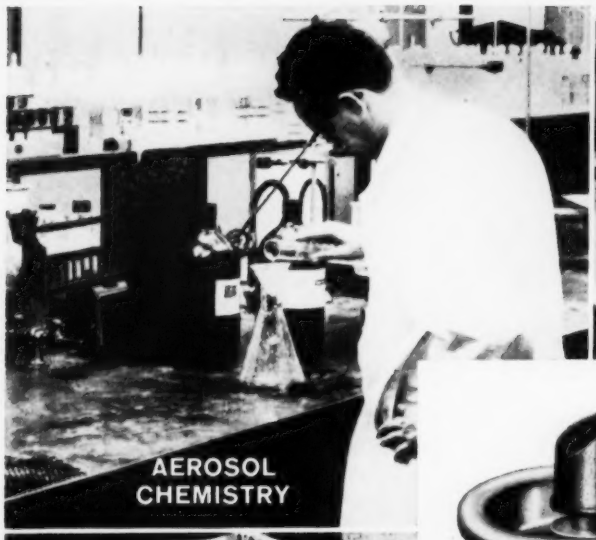
Basic parts of the valve assembly were described by Mr. Graham. Slides showing dip tube type of assembly for upright dispensing and upside-down type of assembly without dip tube were shown. Conventional and break-up actuators or nozzles were discussed. Speaking of valve cups, Mr. Graham expressed the belief that the rapid rise of pressure packaging was in part due to the early industry-wide standardization of cups to one inch diameter. Means of attachment of the valve assembly to a metal can and to glass or plastic bottles were discussed. For food aerosols the materials of construction must be inert and lend themselves to certain sterilization measures, Mr. Graham pointed out. This applies not only to all components of the valve assembly but also to the container and its lining. Materials of construction and design must take account also of automated handling procedures. Finally, overcaps are an important part of the aerosol package providing protection for the valve in shipment and storage.

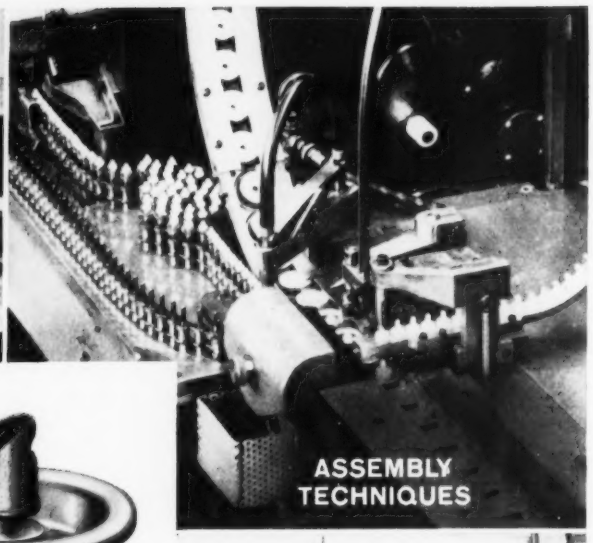
More than 140 exhibits were shown concurrently with the meeting. The Aerosol Division of the Chemical Specialties Manufacturers Association showed a representative array of pressure packaged food products including whipped creams, syrups, barbecue sauce, condiments, seasoning, and olive oil.

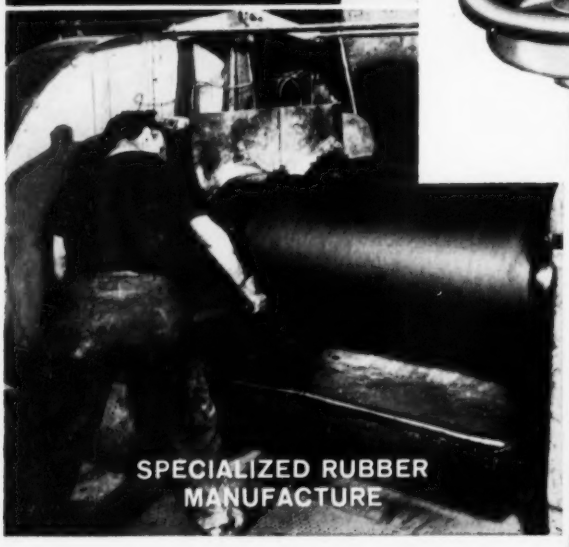
Crown Cork & Seal Co. of Philadelphia exhibited a comprehensive line of food aerosols, including some of the most recent developments. Among these was a group of syrups packaged in containers featuring the Continental Enterprises jet dispensing system, which was described by Dr. Sciarra.

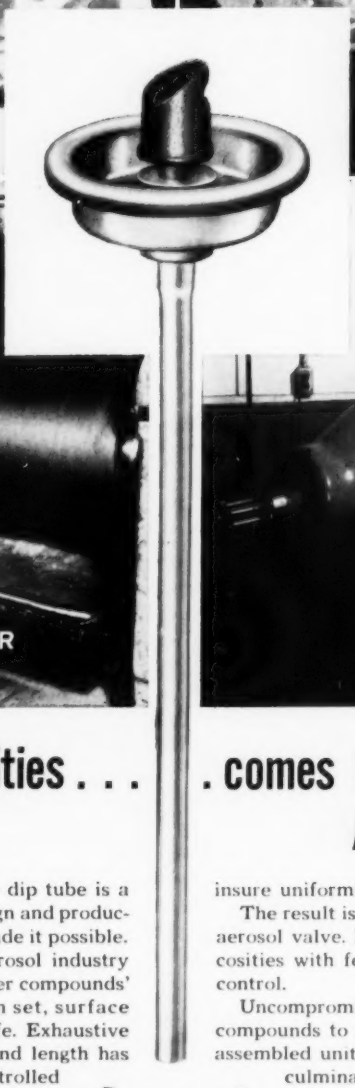
Non-aerosol exhibitors included manufacturers of cleaning compounds for the dairy and food industries, such as the J. B. Ford Division of Wyandotte Chemicals Corp., Wyandotte, Mich., and Oakite Products, Inc., New York.

New "NTI" (non-toxic insecticide) of Stanley Home Products Co., Easthampton, Mass., is packed in 2-oz. Peerless Tube container, equipped with VCA metered valve, tall spray guide button.









From Unmatched Facilities . . . . comes Schrader's Superior Aerosol Valve

Every part of this aerosol valve except the dip tube is a Schrader product...and only Schrader's design and production facilities, greatest in the aerosol field, made it possible.

For example: techniques new to the aerosol industry were developed by Schrader to control rubber compounds' hardness, high resistance to compression set, surface smoothness, size uniformity, and service life. Exhaustive research into wire sizes, diameters, pitch and length has provided a superior valve spring with controlled tension. Rigorous new tests and special equipment were devised to control quality of each component. New production methods were used to insure uniformity and precision.

The result is the world's closest approach to a universal aerosol valve. It can handle a wide range of product viscosities with feather-touch actuation and true-aim spray control.

Uncompromising quality, extending from formulation of compounds to inspection and testing of components and assembled units is typical of Schrader. This valve is the culmination of 117 years of experience in meeting and solving pressurized air problems. Discuss your aerosol valve needs with Schrader's Aerosol Engineers.

Aerosol Valves

Schrader®
a division of **SCOVILL**

A. SCHRADER'S SON *Division of Scovill Manufacturing Co., Inc.*
470 Vanderbilt Avenue, Brooklyn 38, N. Y.

aerosol patents

No. 2,978,152. Aerosol Can, patented by Edward G. Batty, 8611 Hartsdale Ave., Bethesda 14, Md. Patented is an improvement for a pressurized aerosol container for prevention of valve freezing that contains a liquid fill, wherein said liquid fill consists of gases at normal room temperatures and atmospheric pressures that have been compressed into a liquid state, a valve mechanism, at least one dispensing outlet nozzle, a valve activator, and a flexible tube extending from said valve mechanism to the inside bottom of said container, said improvement comprising an expansion chamber having plural openings, one opening being connected to the end of said flexible tube, and a second of said openings being submerged in the liquid fill no matter what position the container is in, an insert plug having a small aperture extending therethrough, fitted in the second of said chamber openings, said plug being made of a material having relatively low heat transfer properties, said expansion chamber being made of a material having relatively high heat transfer properties and also having a density greater than the density of said liquid fill, and being chemically compatible with said liquid fill.

No. 2,980,582. Aerosols, patented by John Lewis Keats, assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. Revealed is the process for obtaining an aerosol, which comprises bursting in the air a frangible receptacle containing a finely divided solid material and a fluid, said fluid in liquid phase having a vapor pressure of at least three atmospheres at 25° C., being able to expand endothermally, being inert toward, and a non-solvent for, said solid material and being under a pressure of at least three atmospheres in said receptacle.

No. 2,977,279. Copper Chelate Coordination Complexes, patented by Milton Kosmin, Dayton, O., assignor to Monsanto Chemical Co., St. Louis, Mo. The method of protecting organic material susceptible to attack by fungi is patented which comprises applying to the said organic material, in amounts sufficient to protect the said organic material from fungicidal attack, a copper chelate coordination complex with an N-alkenylalkylene-polyamine containing from three to five amino nitrogen groups separated by alkylene chains of from two to three carbon atoms, wherein the alkenyl radical contains from eight to eighteen carbon atoms.

No. 2,974,083. Insecticidal Compositions, patented by Moshe Neeman, Buffalo, N. Y., assignor to Wisconsin Alumni Research Foundation, Madison, Wis. Described are insecticidal DDT compositions for destroying insects resistant against the action of DDT alone, containing by weight for each part of DDT, as a DDT potentiating agent, 0.025 to 10 parts of p-chlorobenzene-sulfonic acid-N-di-(R)-amide, where R represents an n-alkyl group containing 2 to 7 carbon atoms.

★

Atlas Gives Aerosol Talk

Douglas Atlas, vice-president of G. Barr & Co., Chicago, addressed the graduate school of business administration at Northwestern University recently on the contributions and future role of the private label manufacturer in the expanding aerosol field.

Mr. Atlas stated, "If one proposes to remain successful as a private brand manufacturer, it behooves him to know his technology superlatively well; to obtain the best degree of efficiency from his production equipment and personnel; to avoid obsolescence like a plague and to be able to amortize the costs of doing these things over a large production volume. In this way, he can offer his customers the economies of his large volume efficiency and produce their goods cheaper than they could themselves. They in effect rent his highly efficient plant and personnel for a few hours, a day, a week or a month. Collectively, his customers become more efficient than they could be individually."

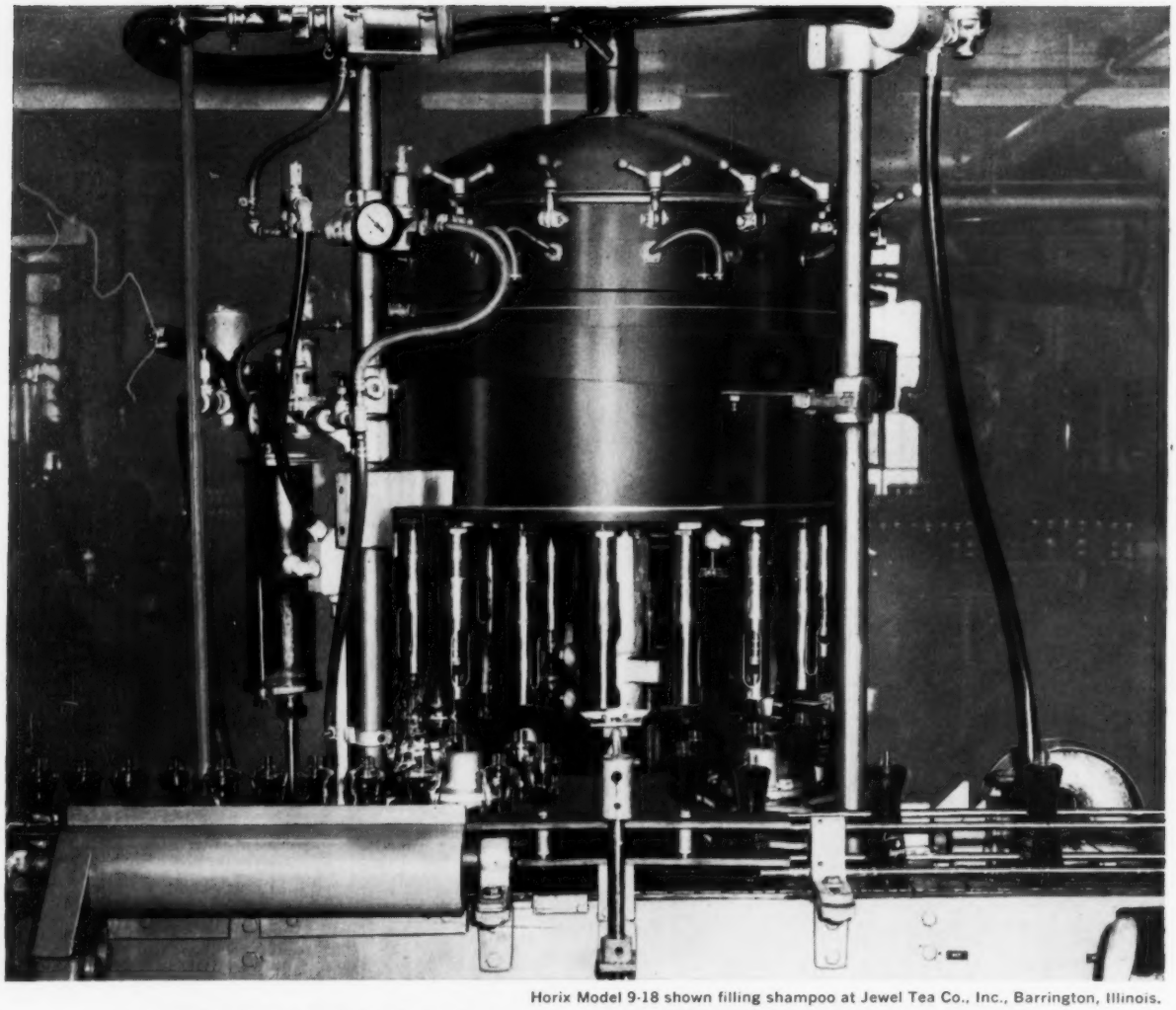
Douglas Atlas

He noted that the past growth of the aerosol industry was paced by the private label manufacturer. Mr. Atlas stressed that the private label manufacturer, to maintain his future share of the market, must be creative. "If through a highly specialized technical staff, he can develop new products, simply by being inventive, the product and services of manufacturing can be sold as a complete package," he said.

"Of the some 75 firms in the field, perhaps eight do the bulk of the work. And these are firms which during the past 14 years have predicated their business on sound premises. They have spe-

(*Turn to Page* 189)

Xavier Givaudan, left, of Givaudan & Cie., Paris, who recently spent six months visiting Givaudan branch offices in the United States, is shown visiting the plant of Fluid Chemical Co., Newark, N. J., contract aerosol fillers. With Mr. Givaudan are: Edmund Bennett, Sr. (holding aerosol can), president, Fluid Chemical Co.; Anthony Iannacone, technical director, Fluid Chemical Co.; and Benjamin S. Cottle, Jr., with the sales department of Givaudan-Delawanna, Inc., New York.



Horix Model 9-18 shown filling shampoo at Jewel Tea Co., Inc., Barrington, Illinois.

NEW HORIX 3-IN-ONE FILLER

GRAVITY • PRESSURE • GRAVITY-VACUUM

This new combination Horix filler, gives you a choice of Gravity, Gravity-Vacuum or Pressure operation in one filler. You choose the method that's best suited for the product and container.

This flexibility coupled with the well-known Horix filler quality, makes this machine ideal for plants with multiple products and containers. The filler can handle a wide range of products into Glass, Tin, Plastic containers, (including Aerosols) of any size or shape, from one ounce to two gallons. It comes in several models with from 9 to 48 valves, with filling speeds up to 600 C.P.M.

No matter the method used, you are assured of *exceptional accuracy* at any speed. And like all Horix fillers, this new filler is ruggedly built for long life and minimum maintenance, provides individual container control and has no overflow and return system on Gravity or Gravity-Vacuum operation.

Special Design Features on High Speed Machines

Automatic Lubrication • Fluid Drive • Automatic Feed Line Valve • Easy Change Over in Filling Method • Valves Suitable for all methods.

Complete Container Versatility

Any size in Glass, Tin, Aluminum or Plastic—open top or narrow neck.

Product Versatility

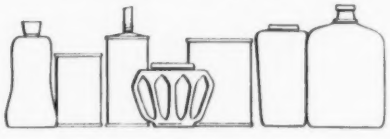
Liquid Starch • Cleaners • Detergents • Shampoos • Cosmetics • Alcohol • Thinners • Liquid Wax • Polishes • Lighter Fluid • Brake Fluid • Outboard and other Motor Oils.

A Few Installations

Jewel Tea Co., Inc., John C. Stalfort & Sons Inc., Haag Laboratories Inc., S. C. Johnson & Son.

Write for more information

Complete details on this new Horix Model available on request.



HORIX

MANUFACTURING CO. · PITTSBURGH 4, PA.

H-1

Production...

EQUIPMENT · MATERIALS · PROCESSING

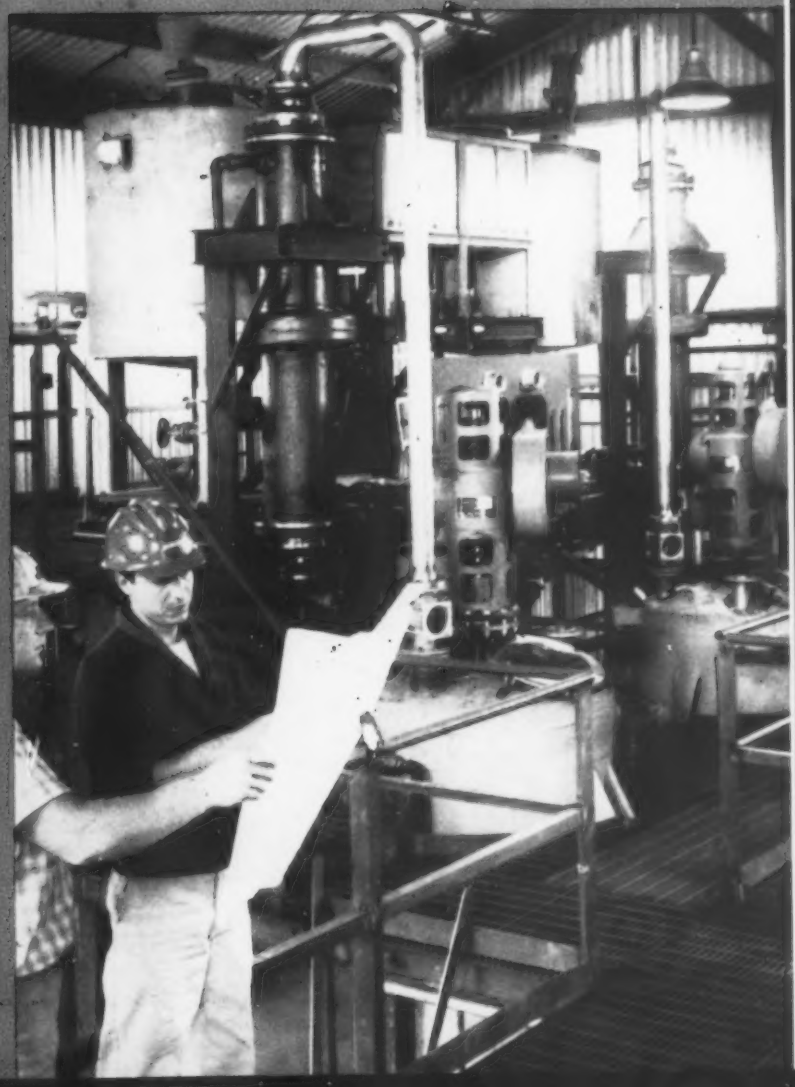
Measuring Detergent Consistency

Soap Plant Observer

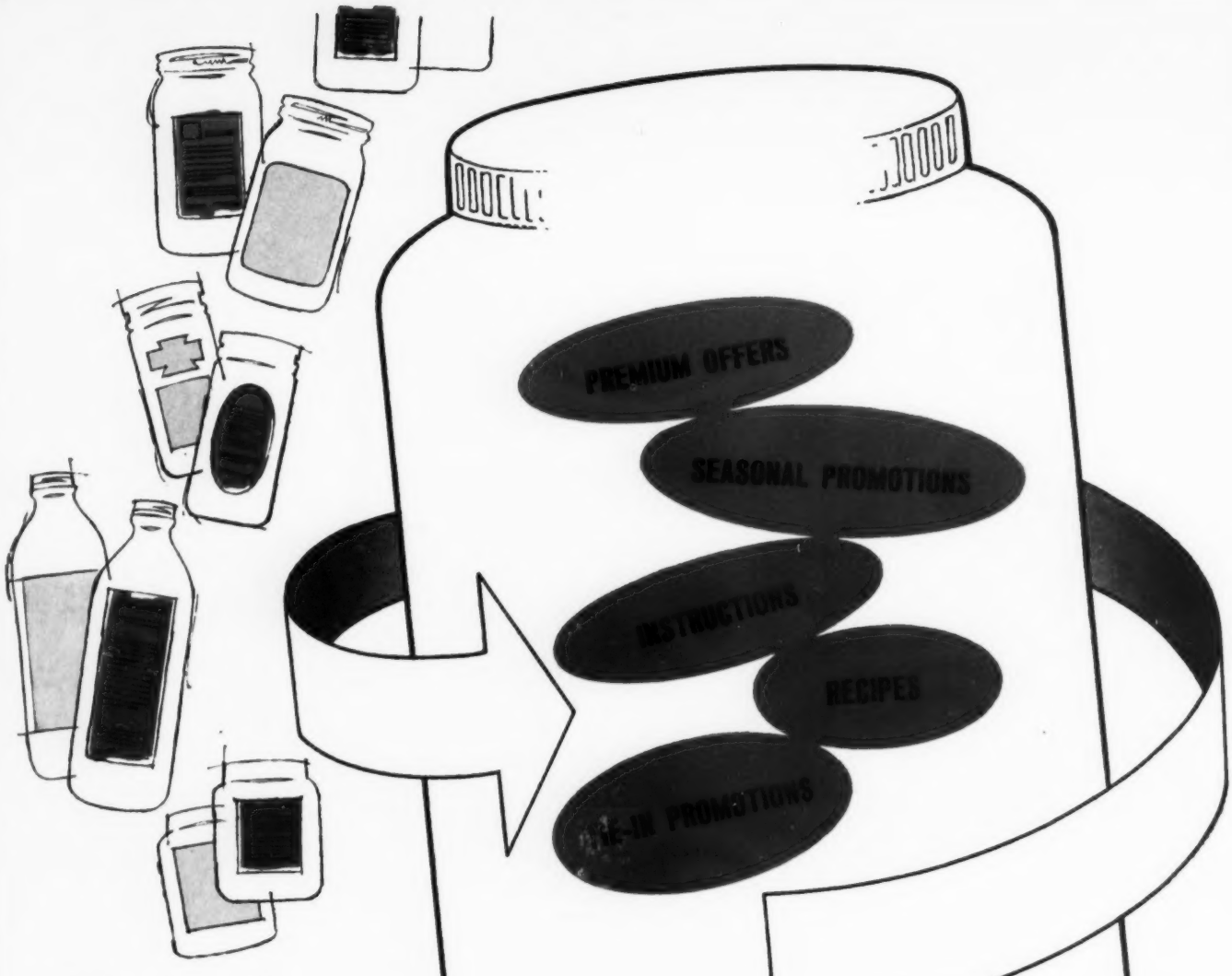
New Patents

Book Reviews

Bulletins and Equipment



Reactor installation shown here forms part of new resin polymerization unit of Air Reduction Chemical & Carbide Co., which went on stream last month. Located at City of Industry, Calif., the plant produces "Flexbond" copolymer emulsions and "Vinac" polyvinyl acetate emulsions, beads and powders, to be marketed by Colton Polymers department of Airco to industrial consumers. Story on page 164.



Switch from wrap around body labels...

by emphasizing both sides of the container. Many leading manufacturers have discovered new sales allure in their packaging. *Multiple labeling* offers the ideal display area for premium offers, seasonal promotions, recipes, use directions or tie-in *and* . . . enhances product sale too . . . by giving the consumer that something *extra.*

Write for your copy of *"What Are You Doing To Be Noticed?".*

Good Labeling Sells!

WORLD LABELERS

ECONOMIC MACHINERY COMPANY • WORCESTER 9, MASS. / Division of Geo. J. Meyer Manufacturing Co.

Measuring Detergent Consistency

By Hans E. Tschakert,*
Chem. Werke Huels, A.G.,
Marl-Huels, Germany

Part II.

WHEN testing detergent consistency on the Plastograph**, calculations must be based on these given facts: Maximum deflection of the Plastograph indicator shows that a force of 1000 mg is acting on the balance system. Assuming that the ratio of the lower lever is set at 1:5, a force of 5000 mg is brought to bear upon the upper lever. This upper lever is attached to the housing. Its length, measured to the edge of the knife is 20 cm. Therefore the torque imparted to the motor housing is

5000 x 20 = 100,000 cmg.

This reaction torque is balanced by an equally high action torque of the rotor with the mixer. The action torque results from resistance (friction R) in the mixer. Its effect may be expressed:

$$N = \frac{R \times 2\pi \times r \times n}{60} \quad \frac{cmg.}{sec.}$$

with r being the mean mixing blade radius in cm. and n the rpm.

An equally large counter torque is produced by the oscillating mass P with the lower arm a. The torque of P with the lever arm a is thus equal to the torque of the fractional force R with the lever arm r:

$$R \times r = P \times a, \text{ hence } R = \frac{P \times a}{r}$$

This value, inserted in the equation, will then show for power:

$$N = \frac{P \times a \times 2\pi \times r \times n}{r \times 60} \text{ or}$$

$$N = \frac{P \times a \times \pi \times n}{30} \quad \frac{cmg.}{sec.}$$

Hence the force P (indicator deflection or ordinate of a point on the curve) is directly proportional to the power output N acting upon the mixer. Thus, a power-time diagram is obtained.

The area on the diagram which is bordered by the recorded curve and the zero line is therefore proportional to the mixer's work.

Assuming a lever ratio of 1:5 for the lower balance beam, maximum deflection of scale indicator will equal.

5000 x 20 or 5 x 0.2 = 1.0 mkg.

At a lever ratio of 1:2 the end value of the scale will be

1000 x 0 or 1.0 x 0.2 = 0.2 mkg.

Test Materials Listed

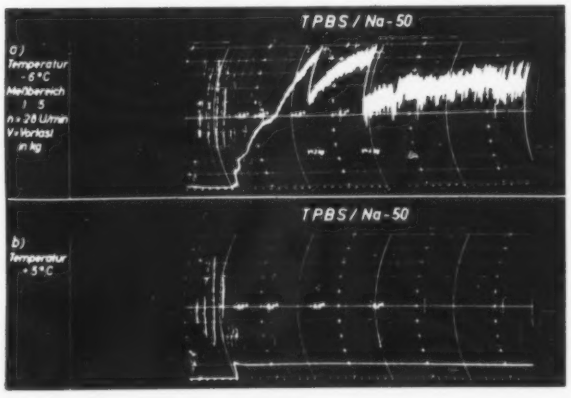
Following is a list of detergent materials submited to Plastograph consistency tests with abbreviations used to identify them in the diagrams. WAS stands for active detergent, WIS for active ingredient.

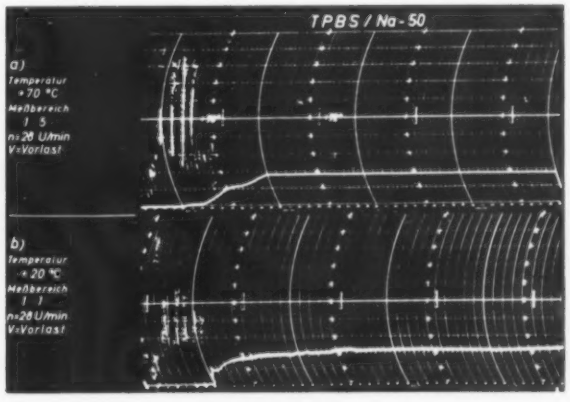
TPBS/Na-50 — tetrapropylene-benzene-sulfonate-sodium salt; 50% WAS
TPBS/Na-70 — tetrapropylene-benzene-sulfonate-sodium salt; 70% WAS
TPBS/K-45 — tetrapropylene-benzene-sulfonate-potash salt; 45% WAS

*Paper presented at 3rd International Congress of Surface Activity, Cologne, Sept. 1960.

**In the United States: C. W. Brabender Instruments, Inc., 50 East Wesley St., South Hackensack, N. J.

Fig. PA-I/1a and b. Reproduction of strip chart showing measurements on an alkylaryl sulfonate (50% active detergent), lever ratio 1:5, mixer rpm 28. Chart 1a shows results at —6°C.: jerky deflections recorded, probably indicate incipient ice formation. 1b records measurements at + 5°C. Fig PA-I/2a and b (right) shows recordings at 28 rpm. 2a is recorded at + 70°C. and a ratio of 1:5. Chart 2b was taken at + 20°C. and ratio 1:1.

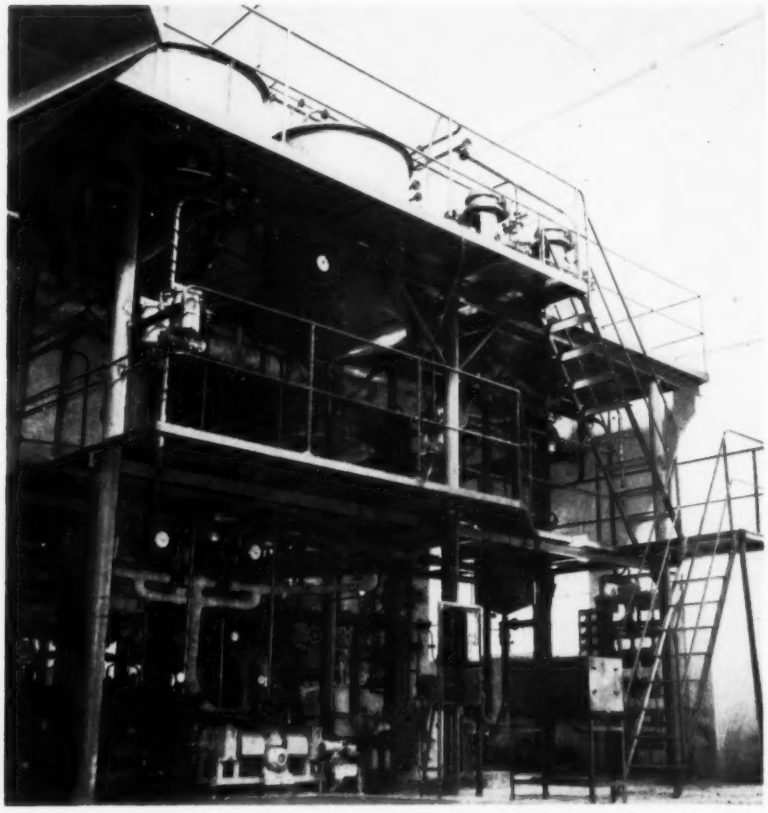




G. MAZZONI S.p.A., BUSTO ARSIZIO, Casella Postale 421 (Italy)

Continuous and Automatic Saponification Plant For Fatty Acids.

Production capacities ranging between 500 and 6,000 Kilograms per hour



General view of the continuous and automatic saponification plant for fatty acids.

Characteristics;

Automatic control of free caustic in soap with an accuracy of ± 0.01 %

Very accurate control of the sodium chloride content in soap from zero to any required value

Maximum percentage of unsaponified saponifiable matter 0.05 %

Utilities required for 1,000 Kgs. of soap 62 — 63 % fatty acids:

Steam at 2-3 Kgs. sq. cm.	:	65-70 Kgs.
Electricity	:	10-12 KWh.
Labor	:	1 man.

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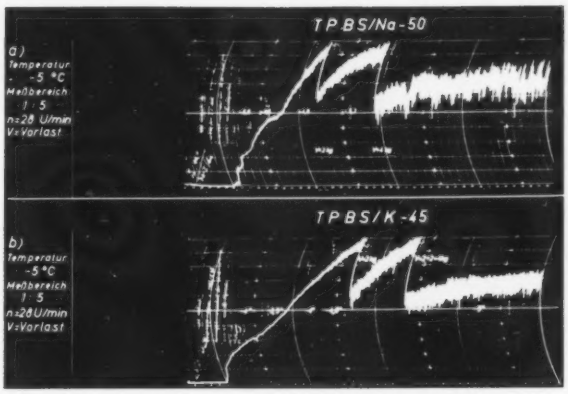
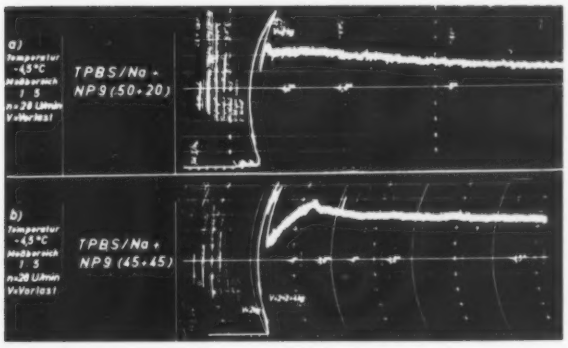


Fig. PA-1/6 a and b, shows plasticity values under constant test conditions: temperature —5°C.; lever ratio 1:5; and mixer revolutions set at 28 rpm. 6a was recorded with a sample of sodium alkyl aryl sulfonate, 50% active detergent; 6b with a potassium alkyl aryl sulfonate, 45% active detergent. Fig.



PA-1/7 a and b, (right) was recorded at —4.5°C., 28 rpm. 1:5 ratio. 7a is the strip chart of a 50/20 mixture of a sodium alkyl aryl sulfonate and a nonyl phenol ethylene oxide condensate (9 moles e.o.); 7b of a 1/1 mixture fo the same surfactants. In all strip charts V is preload expressed in kilos.

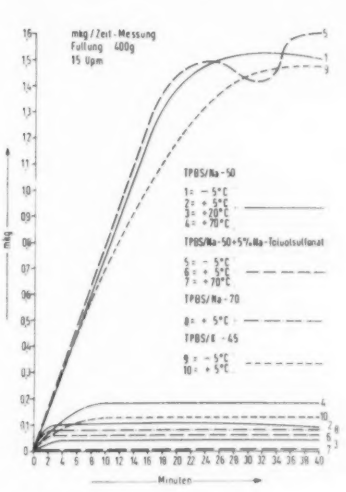
TPBS/KNa-50 — tetrapropylene-benzene-sulfonate-potassium-sodium salt; 50% WAS
TPBS/Mg-50 — tetrapropylene-benzene-sulfonate-magnesium salt; 50% WAS
TPBS/Am-50 — tetrapropylene-benzene-sulfonate-ammonium salt; 50% WAS
TPBS-50/TT — tetrapropylene-benzene-sulfonate-tri-ethanolamine salt; 50% WAS
TPBS-70/TT — tetrapropylene-benzene-sulfonate-tri-ethanolamine salt; 70% WAS
TPBS/TCA-50 — tetrapropylene-benzene-sulfonate-fatty acid-alkylolamide-compound; 50% WAS
NP 3 — nonylphenoloxethylate (+3 Mol AE O)
NP 9 — nonylphenoloxethylate (+9 Mol AE O)
NP 14 — nonylphenoloxethylate (+14 Mol AE O)
M 1218 — coco-fatty acid-monoethanolamide
M 18 — stearic acid-monoethanolamide
D 1218 — coco-fatty acid diethanolamide
D 1885 — oleic acid-diethanolamide
KL — coco-fatty acid-special-alkylolamide
TPBS/Na + NP 9 — tetrapropylene-benzene-sulfonate-sodium salt and alkylphenoloxethylate (NP 9)-blend 5:2)! approx. 70% WAS
TPBS/Na+NP 3 (45 + 45) — tetrapropylene-benzene-sulfonate - sodium salt and alkylphenoloxethylate (NP 3)-blend (1:1); approx. 90% WAS
TPBS/Na+NP 9 (45 +45) — tetrapropylene-benzene-sulfonate - sodium salt and alkylphenoloxethylate (NP 9)-blend (1:1); approx. 90% WAS
TPBS/Na+NP14 (45 + 45) — tetrapropylene-bendene-sulfonate - sodium salt and alkylphenoloxethylate (NP 14)-blend (1:1); approx. 90% WAS
TPBS/Na+NP 9 + glycol (40 + 40 + 10) — tetrapropylene-benzene-sulfonate-sodium salt and alkylphenoloxethylate (NP 9)-glycol blend (4:4:1); approx. 90% WAS
TPBS/Na+NP14 + glycol (40 + 40 + 10) — tetrapropylene-benzene-sulfonate-sodium salt and alkylphenoloxethylate (NP 14)-glycol blend (4:4:1); approx. 90% WIS

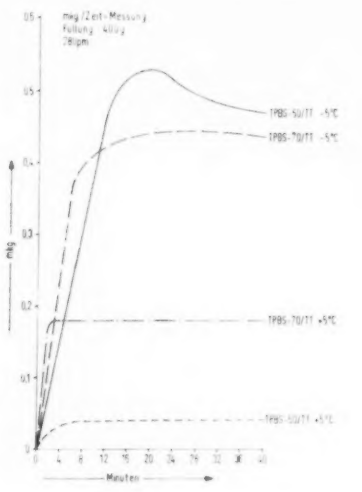
How to Read Charts

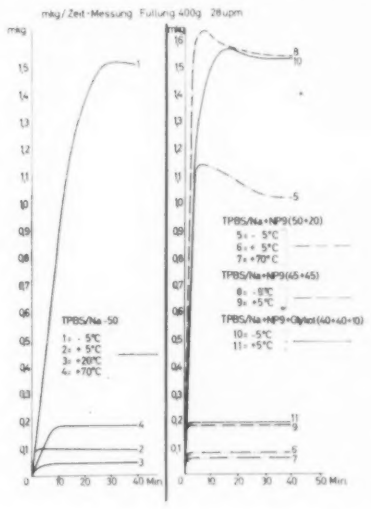
When reading the following diagrams, one should note that mkg values appear in different ranges on the ordinate (f.i. from 0 to 0.4 and from 0. to 2.2 mkg). This is important when comparing different diagrams.

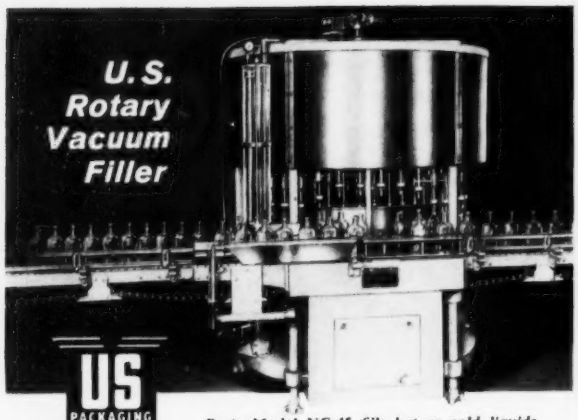
Jerky effects in evidence on the strip charts at temperatures below 0° C. probably indicate incipient ice formation. Tackiness exhibited by many materials is indicated by the irregular deflections to the left and/or right in the direction of the traveling tape. The diagrams show only the mean values of the deflections.

Figures PA-1/3, 4 and 5 shown below, are diagrams using only the mean values of corresponding strip charts. The horizontal ordinate shows minutes, the vertical meter/kilograms. All values were obtained with 400 gram samples. Mixer revolutions for 1/3 (left) 15 rpm; 28 rpm for the other two diagrams.









Basic Model NC-45 fills hot or cold liquids into containers up to 3¾" dia. at 450 p/m

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MODEL B-49 STRAIGHT-LINE VACUUM FILLER. For liquids and semi-liquids. Fills 4 to 9 containers simultaneously. Adjustable for all container heights up to 14". Stainless steel is standard; plastic on order. Discharge conveyor is optional. Write for "Bulletin B-49".

Continuous Filling

MODEL B-2 VACUUM FILLER. Fills 2 containers while 2 filled containers are being removed and 2 empties loaded. Handles containers up to 4¼" dia. up to 13" high. Stainless steel construction. Plastic available. Write for "Bulletin B-2".

For All Liquids • All Containers

Also for foamy products that do not permit agitation. Stainless steel filling tubes. Fill controlled automatically. Glass lined tank. No power required. Write for "Siphon Bulletin".

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Cover odor P.D. No. 250(P)
Cover odor W.A.S. No. 300(W)
Cover odor W.P. No. 400(W)
Rubber Deodorant No. 56
Cover odor A.D.H. No. 200(A)
Cover odor J.W. No. 2404(W)
Cover odor R.C. No. 604(PE)
Cover odor SASS. No. 1954(A)
Cover odor S.T. No. 275(P)
Floratyl Bouquet No. 1009(I)
Cover odor O.B. Nc. 1714(I)
Eugenol Technical(I)
Cover odor N-43(I)
Cover odor N-4(I) (PE)
Cover odor G.R. No. 27(PE)
Nutralco No. 350(IN)

SOAPS

Oil Bouquet C No. 613
Oil Jasmin No. 613
Oil Mimosa No. 615
Oil Wild Rose No. 55
Imitation Geranium S

AEROSOL BOUQUETS

Oil Gardenia No. 3125
Mint Bouquet No. 3121
Oil Sweet Pea No. 3123
Oil Wistaria No. 3124
Apple Blossom No. 3122
Oil Bouquet E.T. No. 3126

SHAMPOO ODORS

Oil Bouquet TV No. 55
Oil Clover No. 888
Oil Corylopsis No. 55
Oil Bouquet H.O. No. 8267
Oil Bouquet M. No. 55
Oil Bouquet Narcissus No. 55
Oil Bouquet Wild Rose No. 55
Oil Bouquet Almond No. 8262

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Changes of rpm cause wide deflections which are ignored on the diagrams. Test results are obtained in units which are then converted into mkg and evaluated in correlation with either time or temperature.

Series PA-I reproduces results obtained on a Plastograph equipped with roller type mixer. Sample size was 150 grams, rpm fixed at 28, temperatures as indicated.

(To be continued)

—★—

Spray Dryers for Rent

A rental program for conical laboratory spray driers was announced recently by Bowen Engineering, Inc., North Branch, N. J. Adaptable to both nozzle and centrifugal wheel atomization, these dryers are used primarily for laboratory development work or small lot production activities.

The double walled insulated heater is direct gas fired and burners are said to be sufficient to provide dryer inlet temperatures of up to 1000°F. Automatic temperature control, gas pilot light and flame failure safeguard equipment are part of the dryer installation.

—★—

Internat'l Detergents Group

The subcommittee on testing (Commission Internationale D'Essais) of the International Committee on Detergency (Comite Internationale de la Detergence) held its fourth meeting in Amsterdam (Netherlands), March 16 and 17. The following countries were represented: Austria, Belgium, Spain, France, Italy, Holland, Poland, and Switzerland.

Work in progress in various countries dealing with foaming and wetting power and hard water stability of syndets was discussed. Other questions dealt with by the meeting concerned lime soap precipitation by surfactants under various conditions; preparation and standardization of distilled water; preparation and definition of hard water; and specific gravity of surfactants.

Member countries will continue work on emulsifying and dispersing power of surfactants and color and viscosity measurement in surfactants and textile auxiliaries.

—★—

New Esters from Textilana

Textilana Corp., Hawthorne, Calif., recently introduced "Fosfamide N" and "Fosterge LFD," two new organic phosphate esters. These surface-active agents are said to have shown excellent properties when formulated into low foaming and medium foaming hard surface cleaners.

—★—

Gottscho Coding Booklet

A 12-page booklet, "The Mechanics of Initiating and Maintaining a Successful Code-Dating System," is now available free from Adolph Gottscho, Inc., Hillside 5, N.J.

The booklet details the various advantages of coding packaged products, and describes a number of tested coding structures. A selector chart is also included as a guide to the type of coding machine recommended for specific package forms or components in appropriate operational sequences.

—★—

Low Foaming Liquid

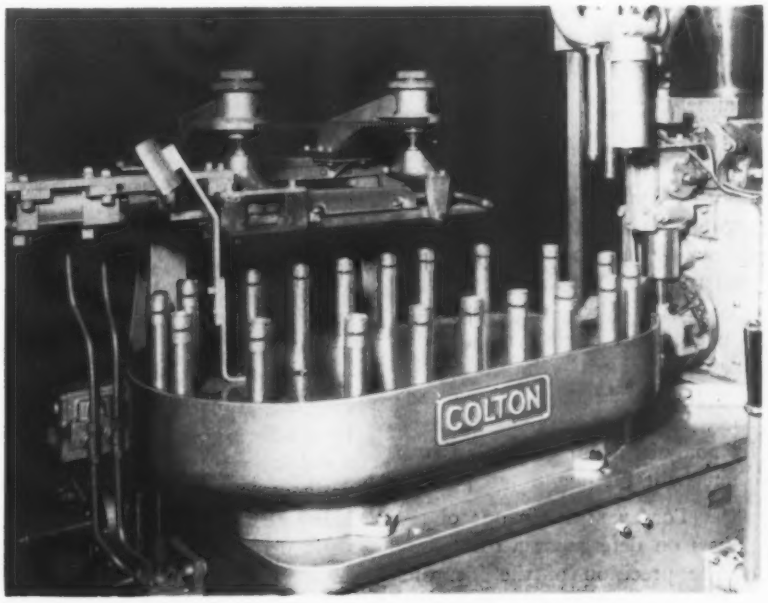
A low foaming liquid detergent for use in automatic dishwashers contains a nonionic detergent, sodium orthosilicate, sodium metasilicate, and potassium tripolyphosphate. The product is said to impart a "dry sheen" to the treated tableware and to exhibit good detergency. British patent 849,811.

New Plastic Tube Sealer

A new, low cost plastic tube sealing and coding conversion unit that can be installed on the company's "Model 17" or "Model 175" tube fillers for paste and heavy liquids, is now available from Arthur Colton Co., Detroit, Mich.

The unit, "Model 176," fits on the filling machines in place of the original folding and crimping heads for metal tubes, enabling one machine to handle either metal or plastic tube filling operations. Plastic tubes can be sealed at rates up to 50 tubes per minute with the conversion unit, the company states.

The unit is adjustable for tube length and has optional pin-type automatic ejection features. Three tubular electric heaters heat the tube ends. An air cylinder actuates jaws to accomplish the tube sealing and coding operation after heating. Coated tubes can also be sealed with this new machine accessory, it is reported.



soap plant observer

By Willis J. Beach,
Technical Service Department,
Sugar Beet Products Co.

SOAPERS who attended the spring meeting of the American oil Chemists' Society (April 30 - May 3) in St. Louis were treated to a half-day program of papers in their field. This is a departure from the norm, for the spring meetings in the past have usually been devoted to the edible oil, nutrition and extraction fields. The soap and detergents session is now titled simply "detergents."

It is interesting to note how many authors reported use of instrumental analysis for measuring and gathering the data, and of statistical analysis for using the information to best advantage.

Authors are now encouraged to mention the make and model of all analytical and testing instruments employed in the work reported. Disclosure of such information may hint of the commercial but it serves two important functions. First, precise information on the instrument involved helps other workers to interpret and repeat one's experiments. Second, it may assist the journal publishing your paper in soliciting advertising by apparatus and instrument makers.

One of the main purposes of statistics is to assist in the separation of chance effects from true regularities and to point up when chance variations may produce a pattern which simulates regularity. The investigator subjecting his data to statistical analysis is not as readily deceived by failures of interpretation. In most fields of science, judgment cannot be replaced by analysis, although analysis can often assist judgment.

For example, in one of the papers on detergency a case study of the precision of the Tergotometer testing method was presented by Dr. E. Jungermann and coworkers from Armour & Co. They were able to determine that the precision of the test was independent of the sample used. This put them in a position to point out with validity that there existed a correlation between detergency performance under the test conditions and slight variations in the chemical composition of several samples of alkyl benzenes supplied for the tests.

Automatic Weighing

Several advantages of automatic weighing systems were pointed out in this column last month as we discussed the Fairbanks-Morse devices. A somewhat different approach to the weight control of the materials entering a process, is taken by Toledo Scale Corp. (Toledo, O.). As mentioned previously, selection of the proper type of cutoff switch is an important factor in controlling delivery by weight. Toledo now relies on a rather novel type of mercury magnetic cutoff claimed to eliminate inaccuracies previously due to magnetic attraction.

The design of the Toledo "step-over" switch is said not to permit the cutoff to occur until the magnet actually has left the switch. The Toledo models can also be furnished with the reed-type switch.

The Toledo models can be furnished with a single cutoff, which is used when rapid weighing from a single speed filling device is required, or with a double cutoff for two-speed control. The double cutoff permits initial feeding or filling of the weigh hopper at rapid rate with the rate changing to slow feed for the final small amount. This final dribble feed arrangement is desirable where weighing must be completed in a relatively short time. The dribble reduces the amount of material in suspension between the source of supply and the level of material in the scale hopper or the tank, thereby giving greater accuracy. The mercury magnetic cutoff switches are equipped with a vernier adjustment for precise setting of the cutoff point. With the double cutoff, the adjustment permits one to five per cent of total dial capacity to be used for the dribble feed.

Toledo offers two types of mercury cutoff switches, both of which can be used in a single or double cutoff arrangement. They are known as the zero type and the adjustable indicator type. To understand the differences between the two types of cutoffs, it is well to visualize the entire Toledo weighing system.

Mounted in a housing below the large weighing dial are two blank beams. These *together*, equal the dial capacity. To set up the proper cutoff weight you merely slide the poises (sliding weights) out along the beams. As you do this, the indicator pointer moves

(*Turn to Page* 167)

products and processes

Liquid Detergent Compound

Incorporation of at least one organic salt of a condensed phosphoric acid in a liquid detergent compound is said to yield a product of good detergency. The surface active agent may be an alkyl aryl sulfonate, fatty alcohol sulfate, liquid soap or mixtures of these materials.

The free condensed phosphoric acid is obtained from its alkali salts by an ion exchange procedure. British patent 845,504, E. Schneider, Wuppertal, Germany.

—★—

New Brightening Agent

"Tinopal SFG," recently introduced by Geigy Industrial Chemicals, a division of Geigy Chemical Corp., Ardsley, N. Y., is a soluble fluorescent whitening agent for masking yellowness and brightening plastics, coatings, synthetic fibers, waxes and other organic materials. "Tinopal SFG," is said to increase the total amount of visible light reflected, enhancing brightness, as opposed to blue or violet tints which mask yellowness by reducing reflection of yellow light. It is said to have good heat stability, withstanding discoloration and showing no decrease in fluorescence at processing temperatures as high as 600° F. The brightener is unaffected by polymerization conditions or curing, the company states.

—★—

Stain Eraser

A rubber eraser in sponge form is suggested as a potential soil remover for various household applications in a brief feature published in the Jan. 4 issue of *Seifen-Oele-Fette-Wachse* (pp. 19-20).

Such an eraser could incorporate a mild abrasive if desired. For removal of discoloring stains from floor coverings it might be fitted on to a long handle. A very soft version could be used to clean wall paper. The author sees potential uses in the removal of grease from coat collars and in "deshining" the seat of pants or other heavily soiled portions such as elbows, for instance. In some of the textile cleaning operations a light solvent may be applied in conjunction with the eraser. Painted wooden surfaces, leather, and suede can be treated to advantage, according to the author.

—★—

Dimethyl Ether from CSC

Dimethyl ether is now available in tankcar quantities from Commercial Solvents Corp., it was announced last month. Use as an aerosol propellant is suggested by the material's noncorrosive properties and unusual solubility characteristics.

Among other industrial applications, dimethyl ether has potential use as a selective solvent for a wide variety of materials.

Mild odor, low boiling point, low order of toxicity, and chemical stability are claimed for the product. A gas at ordinary temperatures, it will be shipped in pressure tankcars at 11 cents per pound, f.o.b. Sterlington, La. Small quantities in small cylinders and technical data are available.

—★—

Acetophenone, Tech. Grade

A new technical grade acetophenone is now being produced by Union Carbide Chemicals Co., 270 Park Avenue, New York 17. In corrosion inhibitors and other applications which do not require the refined grade, this material will allow substantial cost savings, according to the manufacturer.

Prices per pound for acetophenone, technical, are: 30 cents in tank car lots; 32.5 cents in carload or truckload lots of drums; and 34 cents in l. c. l. lots of drums.

Germicidal Dry Cleaner

A disinfectant quaternary ammonium compound in aqueous solution may be dispersed in a dry cleaning solvent to achieve a germicidal dry cleaning process. The quantity of water used is such that the treated material appears to be dry, once the dry cleaning solvent has evaporated. British patent 838,852, Printer Industries, Ltd., London.

—★—

New Salt Form from Morton

Morton Salt Co., Chicago, recently announced a new salt form called "Dendritic Salt," possessing branch or star like crystals in its basic form. The new product combines fine granular form with low per volume weight, a fast dissolving rate, blends well and is stable in storage, according to Morton. Experimental uses to date have shown "Dendritic Salt" performs well as a bulking agent, the company states.

—★—

New Nonionics

Diglucosylurea was found to be the source of a new class of nonionic surface active agents by P. R. Steyermark, T. R. Steadman,, and R. P. German of W. R. Grace Co., Clarkeville, Md. (*Ind. Eng. Chem.* 53, 212, 1961). 1,3-Bis-(D-glucopyranosyl)-urea (diglycosylurea) was obtained in good yields by condensation of D-glucose with urea in glacial acetic acid. This reaction was carried out most successfully at a reduced pressure and in the presence of boric acid.

Transesterification with diglucosylurea of methyl esters of fatty acids yielded diglucosylurea monoesters, which were found to be good nonionic detergents. Formulation with conventional phosphate builders and building with urea were found to boost their detergency.

New Air Reduction Plant

A new chemical manufacturing and distribution facility at City of Industry, Los Angeles County, California, was opened recently by Air Reduction Chemical & Carbide Co., a division of Air Reduction Co., New York. The new $300,000 plant, warehouse, laboratory and sales office is located on an eight acre tract at 17800 East Valley Road.

The plant, which began operation recently, is devoted to resin polymerization and produces "Flexbond" and "Vinac" resins. Used in the formulation of paints, adhesives, and paper coatings, "Flexbond" copolymer emulsions and "Vinac" polyvinyl acetate emulsions, beads, and powders are marketed by the Colton polymers department of Air Reduction Chemical & Carbide Co.

New resin plant of Air Reduction Co. in Los Angeles.

At the City of Industry location, Air Reduction has storage facilities for vinyl monomers, polymers, and specialty products, including "Colfoam" "Microballoons," tiny spheres of urea-formaldehyde resin used by the petroleum industry to reduce evaporation losses in storage tanks, and by the plastics industry to manufacture light-weight foams. Warehouse stocks of "Vinol" polyvinyl alcohols for use in coatings, sizings, film, binders, adhesives, and emulsions are also maintained.

★

Oxo Alcohol Price Reduced

Enjay Chemical Co., a division of Humble Oil & Refining Co., New York, recently announced reduced tank car prices for its oxo alcohol line. The new prices per pound are: hexyl alcohol, 17 cents, down from 19 cents; isooctyl alcohol, 18 cents, reduced from 21 cents; decyl alcohol, 18 cents, from 21 cents; and tridecyl alcohol, 20 cents, down from 24 cents. Prices are quoted f.o.b. the supply point, with minimum freight allowed to any destination east of the Rockies. For shipments west of the Rockies, one cent per pound is added to the quoted price.

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The Marion Mixer is engineered for precision mixing and turns out TOP QUALITY mixed products for chemical manufacturers everywhere. The Marion Mixer is recommended for mixing the Lightest or Heaviest Materials. Its simple, efficient design is rugged enough to handle any volume of mixing large or small . . . and at the same time, it constantly safe-guards your formula mixes from loss of uniformity. Laboratory tests have proven that even trace materials can be blended into the most complicated industrial chemical formulas, and pass individual analysis tests for the most even batch distribution possible.

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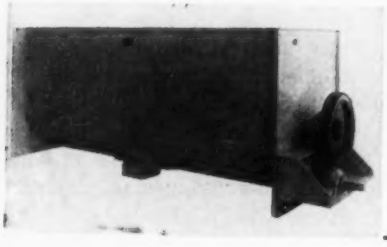

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new patents

Listed below are brief abstracts of recently issued patents. Complete copies may be obtained from the publisher of this magazine: — MacNair-Dorland Co., 254 W. 31st Street, New York 1, N. Y. Remit 50¢ for each copy. For orders received from outside of the United States send $1.00 per copy.

No. 2,980,621. Spotting Composition, patended by Morris Bittenfield, 2127 Division St., Chicago. The patent covers a spotting composition for use in cleaning of garment material, consisting essentially of, in percentage by liquid measure per gallon:

	Percent
Sulphonated castor oil	12 to 50
28% acetic acid	10 to 25
26% ammonia	5 to 38
Soap solution	15 to 65

and said soap solution consisting essentially of, by weight to a gallon of water:

	Ounces
Laundry soap	1 to 4
Sodium perborate	1 to 3
Table salt	1 to 8

No. 2,980,624, Dry Cleaning Compositions, patented by John P. Miller, III, Bloomfield, N. J., assignor to General Aniline & Film Corp., New York. A composition adapted for use in the dry cleaning of textile and fibrous materials in chlorinated hydrocarbon dry cleaning solvent is patented, consisting essentially of a surface active agent mixture for each 100 parts of which there are present at least 15 parts of a polyoxyalkylated fatty amine surface active agent containing from about 14% to about 53% alkylene oxide, the said amine containing at least 35% octadecadienyl amine and the balance of said mixture a mixture of an anionic and an alkyl aryl polyoxyalkylene glycol ether nonionic surface active agent, the components of said mixture being present in the ratio of from about 1:9 to 1.5:1, the anionic surface active agent being selected from the group consisting of the sulfate and phosphate esters of alkyl aryl polyoxyalkylene glycols.

No. 2,981,654. Insecticidal Repellent, patented by Willis Nels Bruce, Champaign, Ill., assignor to Lee Ratner, Miami Beach, Fla. Patented is an insecticidal repellent comprising a combination of from about 0.2% to about 99.5% by weight of di-n-butyl succinate and from about 98% to about 0.5% of a chlorinated insecticide selected from the group consisting of dichloro diphenyl trichloroethane, diethyl diphenyl dichloroethane, and methoxychlor.

No. 2,980,629. Gel-Free Rosin Soap and Method of Preparing Same, patented by Charles M. Lambert, New London, Pa., assignor to Hercules Powder Co., Wilmington, Del. This patent teaches the process of forming a liquid gel-free rosin soap which comprises forming a mixture of (1) rosin, (2) a saponifying agent selected from the group consisting of sodium and potassium alkali, (3) a salt selected from the group consisting of sodium chloride and potassium chloride and (4) water, reacting the mixture to form a soap, and adjusting the acid number, total solids content and salt content such that the potassium soap has an acid number from about 17 to about 22, a total solids content from about 78% to about 82% and a salt content from about 1.8% to about 2.0%, based on the total solids, and the sodium soap has an acid number from about 22 to about 26, a total solids content from about 75% to about 79%, and a salt content from about 1.8% to about 2.0%, based on the weight of the solids.

No. 2,980,941. Cleaning Sheet, patented by Robert E. Miller, Dayton, O., assignor to National Cash Register Co., Dayton. Covered is as an article of manufacture, a cleaning sheet, including an absorbent fabric web provided with a profusion of minute pressure-rupturable capsules, each capsule containing a liquid soil remover, and futher provided with particles of absorbent material for adsorbing the liquid and soil removed thereby, the cleaning sheet by being rubbed against the surface of an article to be cleaned, resulting in the rupture of the capsules, thus releasing the liquid to remove the soil from the object to be cleaned, the liquid and included soil being adsorbed on the adsorbent particles and absorbed by the fabric web.

No. 2,981,692. Detergent Compositions, patented by Horatio S. Stillo and Robert S. Kolat, East Lansing, and William R. Nummy, Midland, Mich., assignors to Dow Chemical Co., Midland, Mich. A detergent composition is patented, the detergent component of which consists of a synthetic organic detergent selected from the group consisting of anionic and nonionic synthetic organic detergents and as an anti-redeposition agent a composition selected from the group consisting of a polymeric monovinyl ether of diethylene glycol having a free hydroxyl content between 9 and 12.8 percent and a viscosity between 1.5 and 20 centipoises (10 percent solution in water) and mixtures of said ether with a detergent grade of sodium carboxymethyl cellulose containing at least 8 weight percent of said ether, the balance being sodium carboxymethyl cellulose, the weight ratio of said anti-redeposition agent to said synthetic organic detergent ranging between about 1:10 and 1:80.

No. 2,981,691. Detergent Composition, patented by William C. York, deceased, late of Westbury, N. Y., by Ruth M. York, administratrix, Mineola, and Lloyd I. Osipow, Monsey, N. Y., assignors to W. R. Grace & Co., New York. This invention describes a detergent composition consisting essentially of urea and a mono fatty acid ester of diglucose ureide wherein the acyl moiety attached to the glucose group of the ester contains from 8 to 24 carbon atoms in a 1 to 49:1 weight ratio respectively.

No. 2,978,415. Guanidine Soaps and Dry Cleaning Detergents, patented by Ralph J. Chamberlain, Stanford, Conn., assignor to American Cyanamid Co., New York. The patent teaches a dry cleaning method which comprises washing soiled fabrics in a dry cleaning solvent containing detergent quantities of the guanidine soap of a fatty acid mixture containing about 30 - 60% of oleic acid, about 30 - 60% of linoleic acid and not more than about 15% of saturated fatty acids.

No. 2,978,416. Concentrated Aqueous Detergent Composition, patented by Marvin M. Fein, Westfield, N. J., and Cecil A. Friedman, Buffalo, N. Y., assignors to Allied Chemical Corp., New York. A concentrated aqueous detergent composition is described having the appearance and characteristics of a solution and consisting essentially of water and solutes, said solutes consisting essentially, by weight of the aqueous detergent composition, of about 30% of a mixture of the sodium salts of higher alkylbenzene sulfonic acids having an average of 12 to 16 nonaromatic carbon atoms, about 5% of the sodium salt of toluene sulfonic acid, and 1% to 2% of a polyethylene glycol selected from the group consisting of diethylene glycol, triethylene glycol and mixtures of polyethylene glycols which have an average molecular weight of 200 to 1250 and a major proportion of which have molecular weights within said range.

No. 2,974,082. Process of Inhibiting Microorganisms With Alkylene Bis-Dithiocarbamate Esters, patented by Alfred P. Collins, Terre Haute, Ind., assignor to the State of Iowa, for the use and benefit of the State University of Iowa, Iowa City. The patent teaches the process of inhibiting and destroying microorganisms selected from the group consisting of *Microsporum audouini, M. gypseum, M. lanosum, M. canis, Trichophyton schoenleini, T. rubrum, T. mentagrophytes*, and *Staphylococcus aureus* comprising applying to the micro-organisms a fungicidal amount of alkylene bis-dithiocarbamate ester.

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Surfactants Data Sheets

Continental Chemical Co., Paterson, N. J., has announced the availability of a new formulary containing suggested starting formulations for compounds used in the sanitary and maintenance chemical, soap, cosmetic, and textile industries.

New laboratory bulletins covering Continental's line of alkyl sulfates, alkyl aryl sulfonates, alkanolamides and other specialized emulsifiers are also available, the company states.

—★—

New Victor Chemical

Victor Chemical Works, a division of Stauffer Chemical Co., New York, recently introduced "Stabilized T-80," a new, stabilized form of methyl parathion. The product offers several advantages to formulators: with 80 per cent concentration, less material need be sprayed on absorbent carriers which, in turn, yields drier, more free-flowing dust bases, containing less solvents so that weight loss through evaporation is reduced. The higher concentration of the toxicant reduces spray time and minimizes labor costs.

"Stabilized T-80," methyl parathion, is resistant to heat and hydrolysis and also to the catalytic degradation which results from contact with certain types of clays and absorbents. An eight page research report on the new product is available from the Victor division sales office in Chicago. Samples are also available, but because of its toxicity, special arrangements are required.

—★—

New Insect Control Film

A new, 16 mm, color film entitled, "Lawn and Garden Insect Control," produced by Iowa State University in cooperation with Velsicol Chemical Corp., Chicago, is now available to dealers for group showings.

The film, which compares a backyard picnic to the insect picnic that goes on all summer in lawns and gardens, is available on a free loan basis by writing Velsicol Chemical Corp., 330 East Grand Ave., Chicago 11.

—★—

MM&R 1961 Catalog

Over 1150 essential oils, balsams, oleoresins, basic perfume oils, flavor concentrates and allied materials are included in the 1961 catalog and price list of Magnus, Mabee & Reynard, Inc., 16 Desbrosses Street, New York 13.

Some of the perfume oils are listed by their suggested end uses, such as bouquets for liquid soaps, for polishes, detergents, etc., or odor masking agents for insecticides. A separate section is devoted to aerosol perfumes. In all instances recommended dosages are shown.

—★—

Rubber Floor Cleaner List

The Rubber and Vinyl Flooring Council of the Rubber Manufacturers Association, New York, recently announced the availability of a new list of approved cleaners and polishes. The booklet lists cleaners and polishes which can be safely used on vinyl and rubber floors. The products have been analyzed by an independent testing laboratory, which determined that they will not harm the flooring nor the adhesives which bind the flooring. Approved maintenance methods for rubber and solid vinyl floors, and suggestions about the application of cleaners and polishes are outlined in the booklet.

—★—

Solid Dish Rinsing Agent

A solid form rinsing agent for use in automatic commercial dishwashing operations is described in a new bulletin issued by Calgon Co., Hagan Center, Pittsburgh 30, Pa. "Instant-Dri" bar is intended for use with a specially designed feeder in all commercial dishwashers except under the counter machines where "Instant-Dri Pak" is suggested by the manufacturer. The product is a 100 per cent active wetting agent, said to give spot free rinsing with a minimum of handling problems.

Soap Plant Observer

(*From Page* 162)

from its "O" position clockwise until it indicates the desired weight on the dial. In this position the indicator mechanism presumably is just counterbalanced by the poise. With the poise set for the desired weight, material is then added to the scale. As weight is applied, the indicator revolves back counterclockwise toward "O". When the indicator reaches "O" the cutoff takes place.

Tare weight is compensated for by adding the amount of tare weight to the desired net weight. The poises are set so that this gross weight is indicated on the dial. When the final cutoff occurs, the desired net weight will be in the hopper.

The zero type cutoff, just described, is especially suited for repeated weighings of the same amounts of material such as filling successive loads to the predetermined weight. The Toledo scale can also be equipped with an adjustable indicator type of cutoff. This device is required for use of a Printweight, to control cutoff weights in conjunction with an automatic tare, or to weigh more than one ingredient successively.

The adjustable indicator arrangement includes a cutoff dial and indicator system in addition to the weighing dial and its indicator. This adjustable indicator and dial are installed on the back of the scale. The adjustable indicator is set for the desired weight on the cutoff dial. Then, as the load is applied to the scale, the *cutoff indicator* revolves back toward "O" on the cutoff dial. At the same time, the *weighing indicator* moves away from "O" on the weighing dial toward the desired weight. When the cutoff indicator reaches "O", and the weighing indicator reaches the desired weight, the final cutoff occurs. This arrangement is also available for single cutoff or double cutoff operation.

Toledo cutoffs are claimed to offer an accuracy of 0.1 per cent when coupled with Toledo precision weighing mechanisms. One should always keep in mind, however, that total batch accuracy is contingent on the type of feeding and valving equipment being used as well as the time available for the weighing operation, the physical properties of the materials being weighed, and the uniformity of the performance of the feeding device. Anyone contemplating the use of weigh tank and scales must carefully engineer the feeding or discharge devices with adequate means for adjusting the speed of operations. In the case of double cutoff, one must provide for two rates of flow by furnishing a two-speed valve or two valves in tandem; or two rheostats or variable transformers with a vibrating conveyor; or a two-speed motor with two-speed starter for screw or belt feeders.

Important safety recommendations for users of tank or hopper scales will be discussed next month.

—★—

New Flange Former

A continuous plastic double flange forming machine, capable of folding up to 3,000 blisters an hour, was introduced recently by Tronomatic Machine Manufacturing Corp., New York.

Known as the model C, the unit makes 90 or 180 degree flanges on any thermoplastic .005 thick and higher. The new forming machine folds blisters to accommodate cards of from one and one quarter inches in width up to a maximum of 14 inches, with card thicknesses up to one-eighth of an inch. Folding is done as the plastic moves across a pair of heated bars. The machine is adjustable for variations in flange and foldover requirements.

Its high output rate is claimed possible by a number of unique design features: variable speed drive, providing smooth, unhindered movement throughout the folding action; tooling design, which allows constant heating of top of bottom edges, as they are folded, at all points along the forming bar; and dual thermostatic controls, for precise heat transfer at desired temperature. The unit measures 100″ x 30″, is 44″ in height and weighs 750 pounds.

—★—

Sugar Patents Up to Date

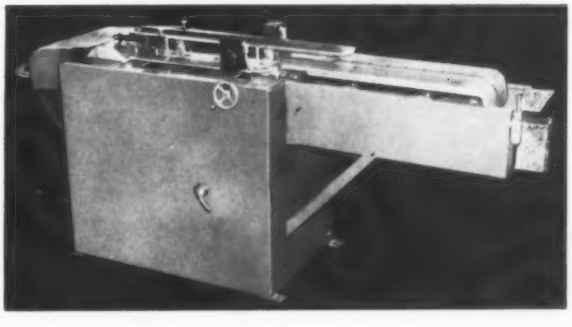
"Patents on the Reactions of Sugar," a bibliography first published in 1947, has been brought up to date and is now available from Sugar Research Foundation, Inc., 52 Wall St., New York 5.

Compiled by Mildred Hunt, technical librarian of the foundation, the 60-page booklet covers domestic and foreign patents pertaining to sugar as a reactant. Sugar based surfactants are included.

—★—

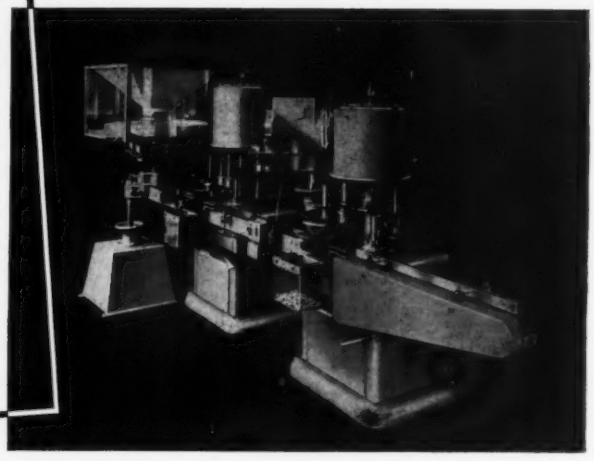
Colloid Mills Booklet

Colloid mills and "Dispersator" mixers are described and illustrated in a new booklet by Premier Mill Corp., 224 Fifth Avenue, New York. Information on the application of these mills and mixers and tabular data to aid in the selection of suitable equipment for the purpose in hand are included in the brochure.



New continuous plastic double flange forming machine of Tronomatic Manufacturing Corp., N. Y. Unit is capable of folding up to 3,000 blisters an hour.

Speed up your powder filling lines with CONSOLIDATED'S Synchronized Capping Units



These close-coupled synchronized Consolidated units are specially designed for automatic, high speed sorting and applying of can breasts and secondary threaded or slip closures.

Can breasts are held in the plexiglass major supply hopper and automatically fed to the rotary sorter as needed. Chucks seat them properly over the can tops. Objectionable scratching is greatly reduced because they are handled much more gently than by other methods.

Synchronized with the sorter unit is a standard 4-spindle Consolidated capping unit which sorts and applies the threaded or snap-cap type closure. You save floor space because of the close-coupling of the two units.

Both units are geared for a speed of 120 closures a minute, and are designed for high speed, dependable, day-in-day-out operation.

For complete information, write Sales Manager, Consolidated Packaging Machinery Corp., 1400 West Avenue, Buffalo 13, N. Y.

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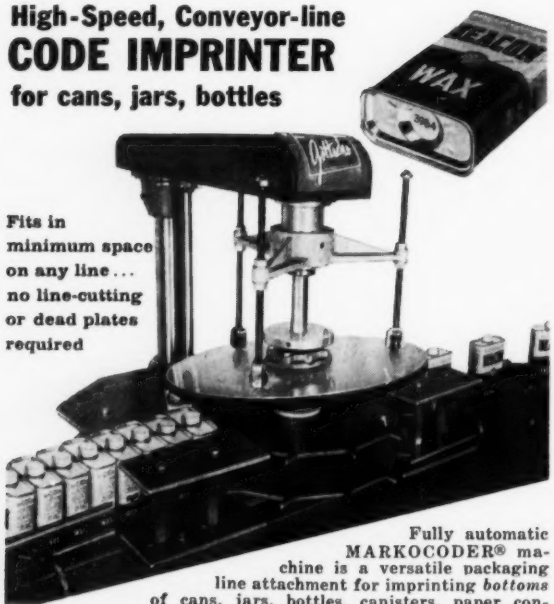
—CAPEM—→ THE HIGH SPEED, DEPENDABLE SCREW CAPPER

High-Speed, Conveyor-line CODE IMPRINTER for cans, jars, bottles



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Fully automatic MARKOCODER® machine is a versatile packaging line attachment for imprinting *bottoms* of cans, jars, bottles, canisters, paper containers at speeds up to 600 per minute. Keeps products flowing smoothly. Makes consistently clean imprints from rubber type and fast drying fluid ink. Designed for quick code changes, simple maintenance, easy adjustment for different size containers. Install it yourself in a few hours.

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News...

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P & G Plant for Georgia

* * *

Two Williams' Injunctions

* * *

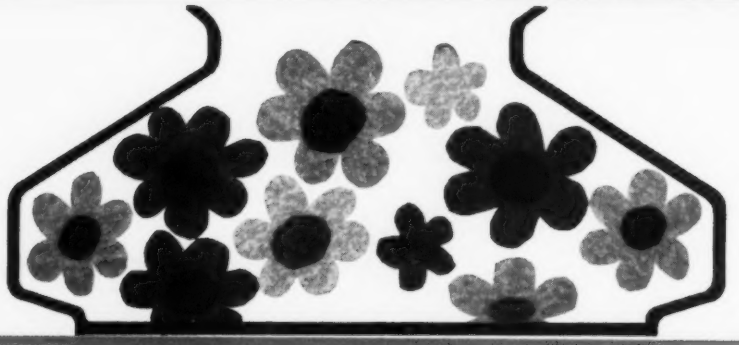
Sandrik Simoniz Vice-Pres.

* * *

Detergent Sales Increase

Appointment of Robert W. Young, Jr., as vice-president and general manager of the household products division of Colgate-Palmolive Co., New York, was announced recently by George H. Lesch, chairman and president. Mr. Young is succeeded as vice-president and marketing director of the household products division by John E. Grimm, III, previously marketing vice-president of Sterling Drug, Inc.

When Your Scented Products Are Caught In The Cost-Price Squeeze—Come to ORBIS



When costs are increasing faster than you can make compensating (and yet competitive) price adjustments, it's time you came to Orbis. Orbis scents **cost you less** . . . and give you the high-quality, uniform scents so necessary to the success of your products. Orbis fragrances help make you money, too . . . their popularity leads to increased sales. See for yourself what Orbis can do for all your scented products. Write us for samples and for the complete Orbis catalogue of fine essences.

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NEWS

Colgate Elects Young

Robert W. Young, Jr. has been elected vice-president and general manager of the household

John E. Grimm

products division, Colgate-Palmolive Co., New York, it was announced recently. Mr. Young replaces William T. Miller who will assume the duties of president, Colgate-Palmolive International, Inc.

Mr. Young joined Colgate in 1959, as vice-president and director of marketing for the household products division. Prior to that he was associated with Kenyon & Eckhardt, Inc., New York advertising firm.

John E. Grimm, III, has been elected vice-president and marketing director of the household products division, succeeding Mr. Young. Mr. Grimm was formerly vice-president of marketing, Sterling Drug Co., Inc., New York. Previous to that he served as vice-president and director of marketing of J. B. Williams Co., Glastonbury, Conn.

—★—

Virginia Name Change

Virginia Smelting Co., West Norfolk, Va., recently changed its name to Virginia Chemicals & Smelting Co., "to reflect more accurately the nature of its business." The firm manufactures chemicals, aerosols and refrigeration products which are being marketed both domestically and overseas.

—★—

P&G France Buys Plant

Procter & Gamble Co., Cincinnati, recently announced that its French subsidiary, Procter & Gamble France, has purchased a complete factory installation at Marseilles. The plant, located on a 35-acre site, has manufacturing capacity for synthetic detergents and soap products. The firm had been renting a part of the plant since 1955 and had installed a synthetic detergents tower in the rented part.

—★—

Gregg Shulton Director

The election of David Gregg, Jr., as a director of Shulton, Inc., Clifton, N. J., was announced recently. Mr. Gregg, who joined the company in 1950, had served as vice-president in charge of international operations since 1958. Prior to that appointment he was assistant to the president in charge of foreign operations in 1955 and manager of the International division in 1956.

David Gregg, Jr.

Ultra Names Carasik

William Carasik has been appointed technical director of Ultra Chemical Works, Inc., a sub-

William Carasik

sidiary of Witco Chemical Co., New York, it was announced recently.

Prior to joining Ultra in 1960, Mr. Carasik was a group supervisor in development engineering for Atlantic Refining Co., Newark, N. J.

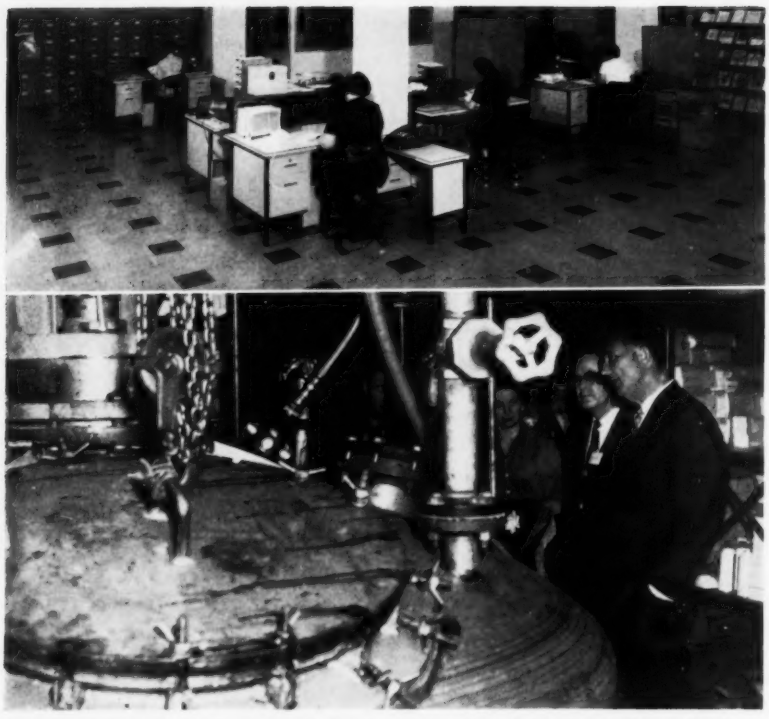
—★—

Safety Award to Fels

Fels and Co., Philadelphia, was among the honor award winners in the recent Seventh Annual Interplant Safety Achievement Contest sponsored by the Chamber of Commerce of Greater Philadelphia. The contest focused attention on plant safety and underscored the gains made by industry in reducing the toll of accidents.

Firms in the 11-county Greater Philadelphia area were eligible to compete in the contest, with participating companies grouped according to their particular industrial or commercial classification.

Lawrence M. Brown, of Rohm & Haas Co., Philadelphia, was one of the members of the contest committee.



Overall view (top) of new general offices in new office building of Hysan Products Co., Chicago. Henry Brownstein, president of Hysan, extreme right, shows large mixing kettle to group of visitors during tour of plant and new building at recent open house ceremonies.

Herman Strauss Dies

Herman G. Strauss, 68, president of Majestic Wax Co., Denver, died May 13 of a heart attack. Mr. Strauss, born in Germany, came to Colorado in 1901, and established the Majestic Wax Co., in 1925.

★

Wyandotte Plant Opening

Wyandotte Chemicals Corp., Wyandotte, Mich., formally opened its first eastern plant located at Washington, N. J., recently. The new facility manufactures Wyandotte's line of polyether products.

★

Pactra Consents to Order

Pactra Chemical Co., Los Angeles, has consented to a Federal Trade Commission order prohibiting it from making unqualified claims that its "Tilo" ceramic tile cleaner is safe. The order requires the company to stop claiming that "Tilo" is safe or may be safely used in cleaning ceramic tile unless tile with a metallic finish is clearly excluded. The agreement is for settlement purposes only and does not constitute an admission by the respondents that they have violated the law.

★

Louis Yankner Dies

Louis Yankner 78, founder of the Sanitary Soap Co., Paterson, N. J., died May 3, after a long illness. Mr. Yankner retired in 1951 and was succeeded as president of the firm by his son Paul. He is also survived by his wife Lena and two other sons, Joseph and Morris.

★

Enjay Names Harrington

Enjay Chemical Co., a division of Humble Oil & Refining Co., New York, recently announced that Donald J. Harrington has joined its industrial chemicals division, and is responsible for the coordination of long-range planning for the growth of the company's industrial chemicals line.

Mr. Harrington, who joined the company in 1951, had served as assistant head of the chemical technical service division at Humble's Bayway, N. J., refinery.

P&G Plans Detergent Plant

Procter & Gamble Co., Cincinnati, recently announced plans to build a synthetic detergents plant in Augusta, Ga., to be the first of its kind in the Southeast. Construction is scheduled to begin in the fall, and the plant is expected to be in production early in 1963.

Howard J. Morgens, P&G president, said the Augusta plant will produce the company's line of packaged synthetic detergents for household use ("Tide," "Cheer," "Oxydol," "Premium Duz," "Dreft," and "Dash"). It will also become the warehousing and distribution point for southeastern shipments of Procter & Gamble's soap products, toiletries and other products.

Other company operations in Georgia include, the Clorox Co., which has a household liquid bleach plant in Atlanta, a Buckeye Cellulose Corp., plant in Augusta, and other manufacturing facilities in Macon.

★

Dial Canadian Rights

Officials of Armour and Co., Chicago, makers of "Dial" soap, and Canada Packers, Ltd., Toronto, recently announced an agreement giving Canada Packers exclusive rights to manufacture and market "Dial" in Canada. "Dial" has been available in Canada for only a few years and has not yet reached national distribution.

★

AEROCOS Names Cook

Louis Cook, associated with the packaging industry for 25 years, has been named industrial sales manager for Aerosol Corp. of the South, Arlington, Tenn., it was announced recently. Mr. Cook was formerly with Shelby Paper Box Co., Cleveland, O.

★

John W. Solomon Dies

John W. Solomon, 54, production manager and vice-president of Coty, Inc., and Coty International, New York, died May 17th at Roosevelt Hospital after a long illness.

Leo J. Kelly Dies

Leo J. Kelly, 64, who retired May 1, as executive vice-president and chief operating officer of the

Leo J. Kelly

National Sanitary Supply Association, Chicago, died at home there Sunday May 14, following a stroke suffered earlier in the day.

Mr. Kelly joined the association as its first full-time paid employee in 1945. At that time the membership was 119 firms. Today NSSA has a membership of nearly 1300 firms. Upon his retirement, Mr. Kelly was hired as executive consultant to the NSSA for five years. Succeeding him as executive vice-president of the Association is his son Bernard, NSSA executive secretary since 1956.

Born in 1896 in Bradford, Pa., Mr. Kelly was an active member in many organizations during his business career. Mr. Kelly served as a director for the Chicago Sales Executives Club for four years, and was a member of the American Society of Association Executives and the Chicago Forum of Trade Association Executives. A veteran of World War I, he was also active in American Legion affairs.

Also surviving Leo Kelly are his wife, Anne E. Kelly; another son, Leo Kelly, Jr.; three daughters, Mrs. William J. Nickels, Mrs. James T. Quinn, and Mrs. William M. Logue; 21 grandchildren; two brothers, Robert J. and William J.; and a sister, Frances.

Breck Market Research Div.

John H. Breck Co., Springfield, Mass., recently announced the formation of a market research department which will co-ordinate the marketing of new company preparations. John Jennings, formerly of the Noreen Co., Denver, has been named director of the new department.

★

English Toiletry Sales Up

The Toilet Preparations Federation, Ltd., London, reports total sales by manufacturers in the toilet preparations industry for the 12 months ended Nov. 30, 1960, were 40,512,000 pounds sterling. This figure accounts for approximately 90 to 95 per cent of the industry.

Perfumery (perfumed spirits) increased approximately 12 per cent from £3,576,000 pounds in 1959, to £4,042,000 in 1960. Toilet preparations, including hair preparations, amounted to £36,470,000 pounds, a 12.5 per cent increase as compared with £32,446,000 in 1959.

★

Johnson Names Hapeman

James B. Hapeman Jr. has been named media manager in the household products advertising and merchandising department, S. C. Johnson & Son, Inc., Racine, Wis. Mr. Hapeman formerly was a broadcast research account executive for the Campbell-Ewald advertising agency, Detroit.

James Hapeman, Jr.

Simoniz Names Sandrik

Stephen Sandrik has been appointed vice-president and treasurer of the Simoniz Co., Chicago,

Stephen Sandrik

it was announced recently. Prior to his promotion, Mr. Sandrik was treasurer of the company.

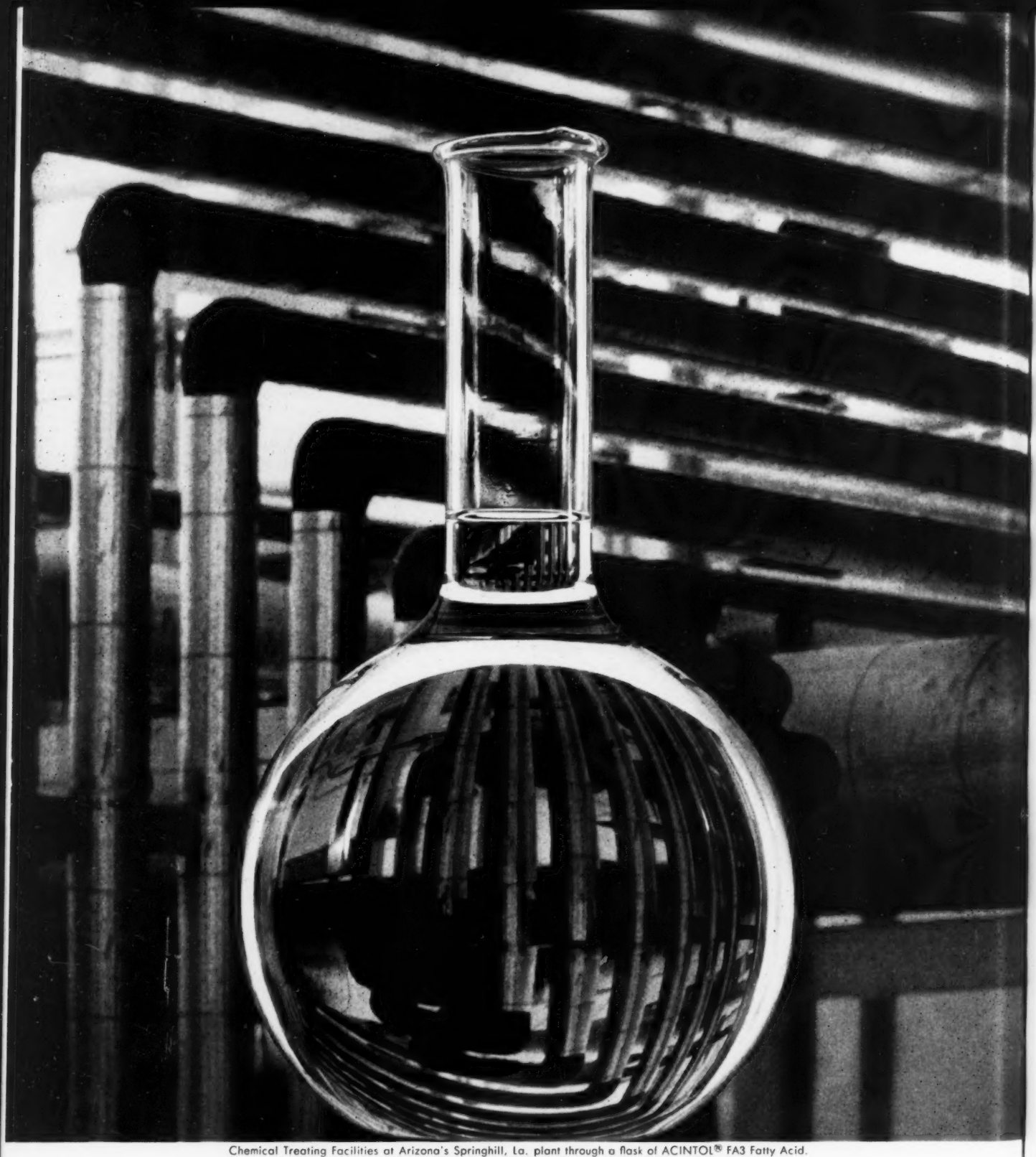
He joined Simoniz in May 1955 as assistant treasurer, was named controller in 1956 and treasurer in 1957.

★

USSR Insecticide Report

A discussion of the development and use of insecticides in the Soviet Union, translated from the USSR's *Journal of the All-Union Chemical Society*, is available through the Office of Technical Services, Business and Defense Services Administration, U. S. Department of Commerce, Washington 25, D. C. The article, which is one of three translations on Russian insecticides published in report form, notes the progress made by American chemists and cites a number of U. S. patents in its bibliography.

The article, *Chief Directions in the Developments of the Production and Use of Chemical Agents for Plant Protection*, which costs $2.50, mentions U. S. progress in this field with approval. "In the past 12 years, American production of organic preparations to combat plant pests and diseases has increased almost fivefold," according to the author N. N. Mel'nikov.



Chemical Treating Facilities at Arizona's Springhill, La. plant through a flask of ACINTOL® FA3 Fatty Acid.

ARIZONA TAKES THAT EXTRA STEP TO BRING YOU THE LIGHTEST FATTY ACID AT ITS PRICE

Even after fractionation, Arizona takes special steps to produce the lightest color fatty acids available in their price range. Through a separate and unique chemical treatment in special process equipment, Arizona now offers the highest quality fatty acids.

New ACINTOL® FA 3 Fatty Acid is the best example of the power of special chemical treatment and increased distillation. It's the palest, purest product in its price range. Specially tailored to soap industry needs, ACINTOL FA 3 is low in unsaponifiables, high in fatty acid content. In short, the perfect economical replacement for oleic acid.

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and ARIZOLE® Terpene Products

Detergent Sales Hit All-Time High

AN all time high has been established by the combined soap and detergent sales reported for the first quarter of 1961. Total sales were 1.9 per cent higher in volume and 1.0 per cent in dollar value than sales reported for the first quarter of 1960, which had set the previous high record. Although current figures maintain an upward trend they do show a tendency to level off, compared with earlier growth. In the first three months of 1960, for instance, combined tonnage sales rose 10.9 per cent above the level achieved in the first quarter of 1959.

Total synthetic detergent and soap sales in the first quarter of this year amounted to 1,102,077,000 pounds, valued at $278,631,000, compared with 1,081,873,000 pounds and $275,873,000 in the first quarter of 1960, according to the quarterly sales census just released by the Association of American Soap and Glycerine Producers. The census is collated from reports by 51 manufacturing member companies.

Synthetic detergent sales in the period under review rose to 858,277,000 pounds, valued at $206,233,000, from 825,851,000 pounds and $201,029,000 reported for the corresponding quarter of 1960. This represents an increase of 3.9 per cent in quantity and 2.6 per cent in value.

Tonnagewise, synthetic detergents accounted for 77.9 per cent of the combined detergent/soap market.

The liquid detergent market continued to grow at the rate of 13.8 per cent in volume and 10.1 per cent in value. Sales of liquid syndets in the first quarter of 1961 totalled 180,640,000 pounds, valued at $56,256,000, compared with 158,736,000 pounds and $51,083,000 dollars in the comparable period last year.

Sales of solid synthetic detergents in the first quarter of this year edged up 0.2 per cent in tonnage and dropped 0.3 per cent in value. Sales were reported at 661,633,000 pounds, valued at $143,623,000, compared with 660,542,000 pounds and $144,123,000 reported for the first three months of 1960.

Unlike previous reports, the current census excludes shampoos from the sales totals given for both solid and liquid detergents and fails to report solid and liquid detergent shampoos separately. This change had to be made to protect the confidential nature of the census, according to the Soap Association. Last year four member companies participated in the detergent shampoo census; this year the number of shampoo manufacturers reporting is not disclosed.

Tonnage sales of detergent shampoos, both solid and liquid, showed a spectacular increase of 143.5 per cent over the first three months of last year. They totalled 16,004,000 pounds, compared with 6,573,000 pounds in the first quarter of 1960. Dollarwise, however, the increase amounts to only 9.1 per cent, from $5,823,000 to $6,354,000.

Total soap sales in this year's first quarter amounted to 243,800,000 pounds, valued at $72,398,000, compared with 256,022,000 pounds and $74,844,00 reported for the corresponding period in 1960. This represents a drop of 4.8 per cent in tonnage and 3.3 per cent in dollar value.

Sales of solid soap in the

Detergent and Soap Sales—First Quarters of 1961 and 1960

	Thousands of pounds		Thousands of dollars	
	1961	1960	1961	1960
Detergents, solid, excl. shampoos*	661,633	660,542	143,623	144,123
Detergents, liquid, excl. shampoos*	180,640	158,736	56,256	51,083
Detergent shampoos, liquid & solid*	16,004	6,573	6,354	5,823
Total	858,277	825,851	206,233	201,029
Detergents, solid, excl. shampoos, pkgd.	633,203	631,497	138,673	139,775
Detergents, solid, excl. shampoos, bulk	28,430	29,045	4,950	4,348
Detergents, liquid, excl. shampoos, pkgd.	168,416	146,296	54,675	49,551
Detergents, liquid, excl. shampoos, bulk	12,224	12,440	1,581	1,532
Soaps, solid	238,552	248,966	71,346	73,458
Soaps, liquid	5,248	7,056	1,052	1,386
Total	243,800	256,022	72,398	74,844
Bar toilet soaps**	137,878	131,067	47,475	47,486
Laundry bars, white	23,779	23,999	5,001	5,133
Laundry bars, yellow & other than white	7,206	14,503	733	1,192
Soap chips & flakes, pkgd.	5,678	6,364	1,917	2,141
Soap chips & flakes, bulk	16,173	20,485	1,617	1,987
Soap, granulated, powdered sprayed, pkgd.	25,457	29,738	7,329	8,906
Soap, granulated, powdered sprayed, bulk	11,913	13,542	1,313	1,488
Hand pastes & powders, incl waterless hand cleaners	2,247	1,973	444	395
Paste & jelly, potash and other	2,044	2,358	270	306
Shaving soaps (stick, powder, cake)	438	512	287	324
Shaving cream (tube & jar, aerosols, and soapless)	5,467	4,202	4,918	4,056
Miscellaneous or other soaps (incl. shampoos, creams, jellies, pastes, powders, pkgd & bulk	272	223	42	44
Soap shampoos, liquid, pkgd.	12***	22***	49	63
Soaps, liquid, excl. pkgd. shampoos	644***	860***	1,003	1,323
Scouring cleansers (not included in above totals)	98,743	96,639	13,500	12,774

*Detergent shampoos are not included in liquid and solid figures and are no longer broken down into liquid solid shampoos for reasons of non-disclosure. ** Includes all toilet bars, medicated synthetic, etc. *** Expressed in gallons.

IF YOUR DETERGENT EMPLOYS

Alkanolamides · Alkyl Aryl Sulfonates · Lauryl Sulfates

SURFACT-CO CAN LOWER YOUR FORMULATION COSTS

Surfact-Co now supplies
the detergent industry's basic surfactants
at the lowest price
per pound of active ingredient.
Our detergent scientists
help you select the right
surfactant at the right cost
for your formulation.
Tech Service includes product development,
formulation and production assists
— until the problem is solved.
What's your application,
what's the problem?
Check with Surfact-Co.

EIGHT
LEADING SURFACTANTS
BY SURFACT-CO

WRITE FOR TECH BULLETIN AND FORMULATION SUGGESTIONS

PRODUCT	USE ASPECTS	APPLICATIONS
DODECYL BENZENE SULFONIC ACID (Surco DDBSA)	Ammonia or diethanolamine neutralization. Dry Soda Ash-Sodium Tripolyphosphate neutralization	Kerosene degreaser and cleaner • Floor cleaner-coupling agent. Low cost car shampoos. Pourable gel concentrate
AMMONIUM NONYL PHENOXYETHYLENE SULFATE (Surco 57)	Auxiliary foamer and detergent in liquid preparations	Dish detergents • car shampoos
DESALTED SODIUM ALKYL ARYL SULFONATE (Surco SF42M)	Contains minimum salt in ethyl alcohol solution	Glass rinses • Liquid dish detergents • General synthetic cleaner • Oven, exhaust fan, deep fry cleaner • Clarifying agent for ammonium alkyl aryl sulfonate solutions
LAURIC DIETHANOLAMIDE (Surco Stabilizer #2)	Standard foam stabilizer and thickener	Low cost shampoos or bubble baths • Liquid dish detergents • Lotion-type shampoo concentrates
COCONUT DIETHANOLAMIDE (Surco Coconut Condensate)	Predominantly non-ionic. Effective with cationics	Base material in high-active floor cleaner concentrates • Glass cleaner and rinse • Thickener
MIXED FATTY ACID DIETHANOLAMIDE CONDENSATE (Surfact-Co MA)	Can formulate without added coupling agent. Hard water resistance • Copious but unstable foam for rinsing ease in suggested formulations	General purpose cleaners • Wax strippers • High viscosity germicidal cleaners • High viscosity synthetic soap cleaners • Lotion-type floor cleaners
LAURYL SULFATES (Surco SLS, Surco AM-LS)	Derived from high lauryl content alcohol. Improved foaming and detergency	Rug and upholstery shampoos • Hair shampoos, clear and lotionized.
SURCO HDL BASE	Can be formulated with large quantities of Tetrapotassium Pyrophosphate for heavy-duty liquid detergents	Laundry detergent • dish detergent

SURFACT-CO

BLUE ISLAND, ILLINOIS

SURFACTANTS
SYNTHETIC DETERGENT CONCENTRATES
DETERGENT SPECIALTIES

first quarter of 1961 dropped 4.2 per cent in tonnage to 238,552,000 pounds. Bar toilet soap sales increased 5.2 per cent in tonnage but dropped 0.02 per cent in dollar value, amounting to 137,878,000 pounds and $47,475,000 in the period under review. Sales of shaving creams, which include pressure packaged types rose 30.1 per cent in quantity, whereas shaving soap sales declined 14.5 per cent.

Liquid soap sales in the first quarter of this year dropped to 5,152,000 pounds, off 25.6 per cent from last year's corresponding period. The market for packaged liquid soap shampoos shrank 45.5 per cent to 96,000 pounds.

Sales of scouring cleansers showed an upturn in the first three months of 1961. The market rose to 98,743,000 pounds, valued at $13,500,000, from 96,639,000 pounds and $12,774,000 reported for the corresponding period of 1960. This represents an increase of 2.2 per cent in tonnage and 5.7 per cent in value. Sales of these products are not included in the market totals mentioned above.

—★—

Ultra Names Distributor

Ultra Chemical Works, Inc., a subsidiary of Witco Chemical Co., New York, recently announced the appointment of the Moss Soap Co., Miami, Fla., as a distributor for its line of surface active agents and detergent products. These include "Sulframin" alkyl aryl sulfonates, both liquid and dry; "Ultrapole" alkanolamine condensates; and Ultra hydrotropes (xylene and toluene sulfonates).

Orders in either truck-load quantities or less will be serviced by the Moss organization throughout southeastern Florida.

—★—

W. F. Kammerer Dies

William F. Kammerer, Chicago branch manager for George Lueders & Co., New York, died May 2. Mr. Kammerer joined the Lueders organization in 1923 and was named Chicago branch manager in 1930.

Stanley Home Elects Sheely

Harold P. Sheely sales promotion manager and acting midwestern region sales manager was elected a director of Stanley Home Products, Inc., Westfield, Mass., at the firm's annual stockholders meeting held recently. Stephen C. Reville, Jr., general counsel, was elected assistant clerk, and Henry A. Cunningham was elected assistant treasurer.

Mr. Sheely joined Stanley as a dealer in 1946 in Dayton, O. He successively rose to unit sales leader, leading branch sales manager, and finally leading area sales manager in 1955 and 1956. During World War II he served four years in the U. S. Coast Guard.

At a meeting of the board of directors immediately following the annual meeting of stockholders, Miss Catherine L. O'Brien, cofounder of the company, was re-elected chairman of the board, and Foster E. Goodrich was re-elected president. Other officers re-elected were Irving Kaplinsky, vice-president; William H. Naylor, vice-president in charge of distribution; Charles C. McPherson, vice-president in charge of marketing and merchandising; Joseph W. Palmer, vice-president in charge of manufacturing; Homer G. Perkins, corporate secretary; and Stephen C. Reville, Jr., assistant corporate secretary.

Directors who were re-elected include Miss O'Brien; Foster E. Goodrich; A. W. Elberman; Irving Kaplinsky, treasurer; R. F. Lally; C. C. McPherson; W. H. Naylor; J. W. Palmer; Homer G. Perkins, clerk; and Mrs. Evelyn Beveridge Russel.

Consolidated sales of Stanley Home Products, Inc., and its subsidiary companies in 1960 were $58,071,139 and net earnings after taxes were $2,436,248, a sales increase of $2,159,196 or 3.86% increase over 1959 and a net earnings increase of $384,654 or 18.74%.

—★—

CIBS Hear Frost

Albert Frost, Bache & Co., New York, was guest speaker at the Cosmetic Indusry Buyers & Suppliers Association (C I B S) May 4th luncheon at the Hotel Pierre, New York. Introduced by Robert C. Ring, C I B S president, Mr. Frost gave background information on financial problems relating to investments and public offerings.

Plans for the Ladies Day luncheon June 8th and the initial golf tournament June 29th at Tamarack Golf Club, G r e e n w i c h, Conn., were announced.

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Heads Dowgard Sales

The appointment of Garland G. Fritts as branch manager for the "Dowgard" line of automotive products has been announced by Dow Chemical Co., Midland, Mich. William R. Lewis continues as field sales manager for "Dowgard" products. Mr. Fritts is responsible for the complete marketing program for "Dowgard" products, while Mr. Lewis will coordinate activities of the field sales force for this line of products.

Mr. Fritts, formerly merchandising manager for "Dowgard Full-Fill" coolant, has been with Dow since 1956. Mr. Lewis has

Photo L to R: Walter Morton, Hazel Atlas Glass Division, CIBS luncheon chairman; Albert Frost, Bache & Co. luncheon speaker and Robert C. Ring, Duveen Soap Corp., CIBS president.

Whether your product cleans skyscrapers or skirts

Soaps suitable for "spotting" wearing apparel...or for cutting the smoke and grime on skyscraper windows...stem from fine phosphates by Victor.

Victor chlorinated TSP, for example, increases cleaning with bleaching action, making it an ideal component for detergents and cleaning compounds.

Whether your products call for sharp cutting action or gentle soil removal...for sodium or potassium phosphates...the point to remember is:

IT *Pays*
TO SEE VICTOR
FOR PHOSPHATES

VICTOR *Chemicals*
DIVISION OF STAUFFER CHEMICAL COMPANY
155 N. Wacker Drive, Chicago 6

CSMA Meeting

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ed propellant 11," the author reported.

"Industrial Applications of Phenylmercurials and Antimicrobials," were discussed by Joseph A. Ramp and Nathaniel Grier, Metalsalts Corp. Phenylmercurials, according to these authors, are "effective at very low levels in many applications and present minimal hazards in the final products. Such items as . . . fabric germicidal rinse . . . need not carry poison designation under the Federal Hazardous Substances Labeling Act." The tolerance for mercury in any farm food is 0.000 parts per million as addition to the background level. The role of phenylmercurials as antimicrobials in a number of chemical specialties and their effectiveness were also discussed.

"Germicides as Factors in the Epidemiology of Hospital Infections," were reviewed by Lawrence B. Hall, Communicable Disease Center, U. S. Public Health Service, Savannah, Ga. He observed that "the industry must, however, face the realities of the epidemiology of disease and recognize their existence The time is passing when the use of germicides can be based solely on the killing of environmental organisms whose pathogenicity is in question. It is true that germicides serve a useful purpose at present in keeping down major infections, as insurance and in meeting the legal obligations of the hospitals, but the time is rapidly approaching when the ultimate question will be posed: 'Does it reduce disease below the easily attained levels?' Upon the truthful answer to that question, backed up by scientific proof, rests much of the future of the industry."

Insecticide Division

"PERSONAL Observations on Pest Control in Russia and Other European Countries" were presented by H. L. Haller, A.R.S., U. S. Department of Agriculture, Washington, D. C. Dr. Haller was the first speaker on the Insecticide Division's technical program, May 17. In addition to his personal impressions he discussed legislation passed or pending in several European countries resembling the Miller Amendment and recent Food Additive and Color Additive legislation in the United States. His talk included a report on a visit to Russia in 1959 by the USDA Entomological Delegation on Cultural and Biological Control of Insects in the U.S.S.R.

Problems presented by the face fly have so far found no satisfactory solution, according to G. C. Decker of Illinois Natural History Survey, Urbana, Ill. Syrup-base baits containing 0.2 per cent DDVP applied to the face of animals each morning have proven to be the most effective method of controlling the face fly on dairy and other cattle, that are handled daily, Dr. Decker reported in his paper entitled "The Face Fly — Problems and Control."

On range animals, breeding herds, and animals which are not handled daily other less effective methods of control have to be used. Five per cent solutions of DDT, methoxychlor or toxaphene in "backrubber" devices are being used with varying success.

Certain chemicals fed to cattle make the manure useless to the face fly as a breeding medium. Problems with this promising control method have yet to be solved.

Dr. Decker's contribution was followed by a paper entitled "A Consumer Looks at Insecticide Marketing," by Andrew B. Meldrum of Meldrum and Fewsmith, Inc., Cleveland. The full text of Mr. Meldrum's talk will be published in the July issue of *Soap and Chemical Specialties.*

Harold Gunderson, Extension Entomologist at Iowa State University, Ames, spoke on "House Pests (Flying Insect Critters) — Flannelgraph Program Developed by the Educational Committee."

Dr. Gunderson was followed by Robert D. Sharp, Prentiss Drug and Chemical Co., New York, who spoke on "Butonate, a New, Safer, Household and Industrial Phosphonate Insecticide." Developed and patented by the Wisconsin Alumni Research Foundation, butonate is the proposed generic name for a new compound claimed to combine low toxicity to mammals with good control of roaches, flies, mosquitoes, and other household insects.

Registration has been granted to butonate for use alone and in combination with synergized pyrethrins in aerosols and other sprays for household application, the speaker reported.

Waxes, Polishes, Floor Finishes

"FLOOR Finishes — What's New" was the theme of a panel discussion at the Waxes, Polishes and Floor Finishes Division's session, May 17. Gerard R. DeNapoli of Masury-Young Co., Boston, acted as moderator. Formulations and markets for modern finishes were surveyed in a paper entitled "Fast Air-Dry Finishes for Wood and Masonry Floors," by

(*Turn to Page* 183)

Give her the detergent she wants . . .

with 2 new TERGITOL Nonionics

She has many cleaning jobs each day, and for each she has a favorite product—the one that helps her best. Be certain that your product is one of her regulars; customize its formula with TERGITOL Nonionics.

CARBIDE offers a complete selection of TERGITOL Surfactants, each with distinctive and useful properties. And, a continuing research program in detergent chemistry brings you such new products as—

TERGITOL E-68—a semi-solid nonionic, with high water solubility and good caustic stability. The cloud point of a 0.5 per cent solution of E-68 in distilled water is 68°C. (154.4°F.).

TERGITOL E-35—another caustic-stable nonionic for use with *dry* alkaline compounds. The cloud point of a 0.5 per cent solution is 35°C. (95°F.). E-35 has low foaming and good wetting action and is highly effective for heavy-duty cleansing of many types.

E-35 and E-68 can be effectively combined with other TERGITOL Nonionics to give you a detergent product that *is* one of her regulars. The CARBIDE Technical Representative in your area will gladly discuss your special requirements with you—and he'll show you how combination orders of TERGITOL Nonionics can save you money while allowing you to customize your formula. Give him a call; or write: Union Carbide Chemicals Company, Division of Union Carbide Corporation, 270 Park Avenue, New York 17, New York.

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UNION CARBIDE CHEMICALS COMPANY

UNION CARBIDE

TGA Reelects

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the argument that they are actually doing serious damage and lasting injury comes as a complete surprise to them, and is often the winning move in an attempt to clean up a messy price situation."

The president reported that the TGA, in close cooperation with the government, had set up a trust fund of three quarters of a million dollars to take care of the testing program required under the new Color Additive Law.

A panel symposium entitled "Packaging Profiles of the Future," was presented the afternoon of May 9, moderated by C. R. "Bud" Keely, vice-president of *Beauty Fashion*. Members of the panel were: Mrs. Charlotte Montgomery, *Good Housekeeping Magazine;* A. H. Lawrence, Jr., Freon Products Division, E. I. du Pont de Nemours & Co.; Ernst Ehrman, Ehrman & Reiner, Inc., and John Miller, director of new products division, Cunningham & Walsh, Inc.

Consumer's Views

Taking the consumer's viewpoint, Mrs. Montgomery reported on "What the Customer Thinks" about packaging. Drawing from her own experience and subscribers' letters, she reproached the industry for offering poorly designed product labels, "ridiculous" television commercials, and poor packaging. According to Mrs. Montgomery "women love aerosols, but complain about that package – the valve that gives up, the difficulty of guessing how much is left; they complain about odors in hair sprays and conflicting odors in the cosmetics they use; they'd like smaller sizes to try out; more and more products in unbreakable plastic bottles, tubes and jars."

"Let's have hair-do's that last more than 12 hours; let's have cosmetics that make us prettier rather than making us look anemic or degenerate; let's have claims that are true – and stated so that they are believable; let's not break faith by following phony gimmicks, no matter how primrose and profitable that path may seem for the moment. Let's have packages that are attractive, convenient, workable and designed with the customer's needs at the top of the list," Mrs. Montgomery said.

"The Future of Pressure Packaged Fragrances" was discussed by A. H. Lawrence, Jr., Freon Products Division of E. I. du Pont de Nemours & Co., Wilmington, Del. He stated that "pressure packaging of toiletries will have a substantial profile in the future based on the three "stalwart" products of today – hair sprays and dressings, shave creams and perfumes and colognes." Mr. Lawrence noted that the "stalwarts" and dentifrices, now account for over 90 per cent of aerosol toiletries and about one third of all pressurized products.

Hair sprays, first introduced in 1949, were produced at the rate of over 100 million units in 1960, after having reached 110 million units in 1958. Shaving foams, starting in 1950, reached 75 million units in 1959, Mr. Lawrence stated. "Aerosol packaged perfumes and colognes, available for only the last seven years, are now selling at a rate of more than 38 million units annually, and the 157 brands of which we have record, probably represent only 70 to 80 per cent of those in existence," he said.

"The problem of complete discharge of toothpaste, which has dogged its acceptance by the teeth brushing public, is on the way to being solved by another pressure package design, namely the piston package. A less obvious design will be forthcoming – use of a different propellant approved by F.D.A. and a different valve, a combination which can create a toothpaste ribbon that foams on the brush," Mr. Lawrence reported.

Package Design

Ernst Ehrman, Ehrman and Reiner, Inc., New York, package designers, suggested that good package design "integrated into the complete company program, can be a springboard for advertising, merchandising and sales promotion campaigns. It can successfully launch a new product, or revive consumer interest in an old one."

"The greatest challenge to the designer and manufacturer today is to rescue the product from the mediocrity imposed by row upon row of similar items. It is the greatest challenge and the greatest chance," Mr. Ehrman said.

Man from C & W

The "cash register marketing approach" was outlined by John Miller, director of the new products division, Cunningham & Walsh, Inc., New York advertising firm, in his talk entitled "What the Man from C&W Found Out." Mr. Miller spoke of a program instituted by C&W to give its desk bound marketing personnel a fresh view of the job to be done. For one week each year, the office staff, on a staggered basis, is sent out to various firms and puts in a week of selling, stocking, etc. This method, it was found, gives C&W an insight into point of sale factors and makes the C&W staff more retail minded, resulting in more effective planning, according to the speaker.

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Penick Shuffles Salesmen

S. B. Penick & Co., New York, recently announced that William F. Lacey has been appointed sales representative for Brooklyn, Long Island and Staten Island, N. Y. Mr. Lacey, who joined Penick in 1955, formerly served in an inside sales capacity.

F. X. McCormack will represent Penick's botanical and allied products division and farm chemical and insecticide division in the south New Jersey, Pennsylvania, Maryland, Delaware, West Virginia and Washington, D. C. territory. He had represented the firm in upper New York State for the past twelve years. F. J. Cevasco will continue to represent Penick's chemical division in the same area as Mr. McCormack.

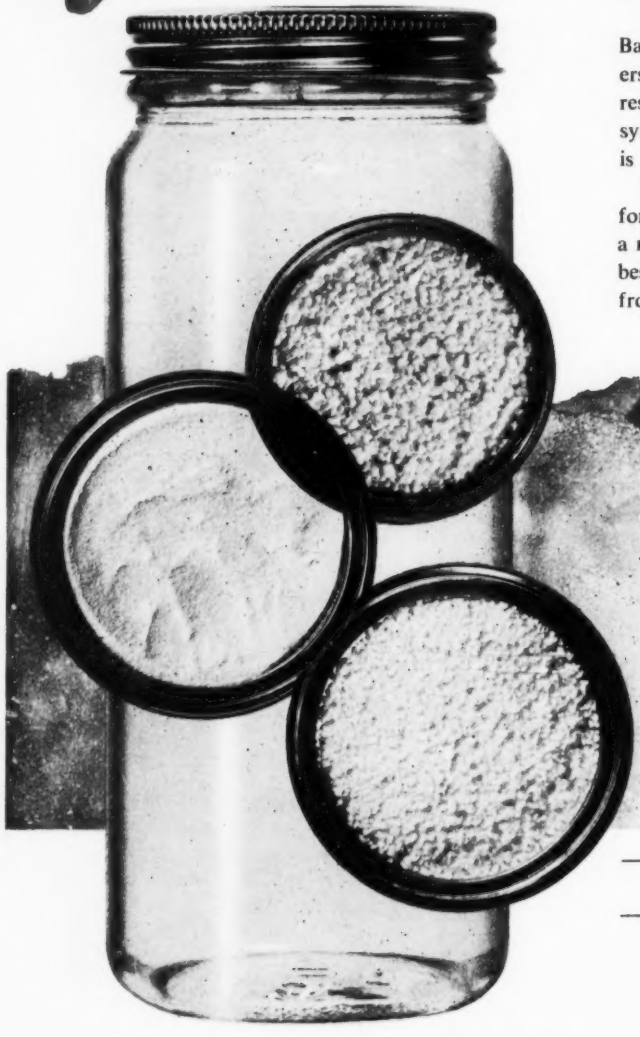
Versatile

PQ SILICATES fit into all formulations

LIQUID • SPRAY DRIED • WET MIX • DRY MIX

Balanced proportions of PQ silicate with your other builders make it possible to produce stable compounds which resist caking in solid mixes, or precipitation in liquids. In synthetics, the use of the right amount of the right silicate is very important, more so than in soap.

Don't overlook the opportunity to get optimum performance for your detergents and cleaning compounds at a minimum cost with the right silicate content. To get the best results in each case we shall be glad to discuss evidence from studies now being made at our research laboratories.



PQ SILICATES USED IN DETERGENT FORMULATIONS

NAME	% RATIO $\%Na_2O:\%SiO_2$	$\%Na_2O$	$\%SiO_2$	BAUME 68°F.
N	1:3.22	8.90	28.7	41.0°
STAR	1:2.50	10.60	26.5	42.0°
RU	1:2.40	13.85	33.2	52°
C	1:2.00	18.0	36.0	59.3°
SS-C PWD	1:2.0	32.70	65.4	Anhydrous Powder
METSO GRANULAR	1:1*	29.50	28.7	Pentahydrate Metasilicate
METSO ANHYDROUS	1:1*	51.00	46.5	Anhydrous Metasilicate
	$\%K_2O:\%SiO_2$	$\%K_2O$	$\%SiO_2$	
KASIL #1	1:2.50	8.30	20.8	29.8°
KASIL #6	1:2.20	9.05	19.9	30.0°

*Molecular Ratio

PHILADELPHIA QUARTZ COMPANY

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PQ SOLUBLE SILICATES

SODIUM SILICATES • POTASSIUM SILICATES

TRADEMARKS REG. U.S. PAT. OFF.

Associates: *Philadelphia Quartz Co. of Calif., Berkeley & Los Angeles, Calif., Tacoma, Wash.; National Silicates Limited, Toronto & Valleyfield, Canada. Distributors in over 65 cities.*

PQ PLANTS: ANDERSON, IND.; BALTIMORE, MD.; BUFFALO, N. Y.; CHESTER, PA.; JEFFERSONVILLE, IND.; KANSAS CITY, KANS.; RAHWAY, N.J.; ST. LOUIS, MO.; UTICA, ILL.

CSMA Meeting
(*From Page* 179)

R. F. Wint and C. G. Oertel of Hercules Powder Co., Wilmington, Del. Both Hercules and Shell Chemical Co. have conducted tests which showed that nitrocellulose lacquer films modified with nondrying alkyds and polymeric plasticizers performed best on hardwood floors, Mr. Wint reported. Chlorinated rubber is the most popular coating for concrete floors, according to the authors.

Second panelist J. M. Stanton of Cargill, Inc., Minneapolis, discussed "Oil-Modified Urethane Floor Finishes." Good wearing qualities and resistance to dirt pickup and cleanup are popularizing oil-modified urethanes for application to prefinished hardwood flooring and gymnasium floors and for use in varnishes for wood flooring in new construction, the speaker said.

In a paper entitled "Designing Floor Surfacings that Last," C. V. Wittenwyler of Shell Chemical Co., Union, N. J., sketched the role of epoxy resin based materials in preventive and corrective maintenance of industrial portland cement floors.

Joint Detergents - Disinfectants

A JOINT technical session consisting of four papers was held by the Detergent and Cleaning Compounds Division and the Disinfectant and Sanitizers Division, the afternoon of May 17.

Ethel McNeil and Maurice Greenstein of the Clothing and Housing Research Division, U. S. Department of Agriculture, Washington, D. C., presented a paper entitled "Control of Transmission of Bacteria by Textiles and Clothing."

"Synergism on Germicidal Compounds by Surface Active Agents," a contribution by Isidore Shafiroff, Hysan Products Co., Chicago, described the mechanisms of germicidal action and of synergistic effects of surfactants on germicides. Examples in the following classes of combinations were discussed in detail: phenolic/soap; quaternary/alkanolamides; sugar esters/quaternary ammonium compounds; quaternary / amphoteric; phenol / amphoteric; quaternary / tin compound; nonionic/trichlorocarbinilide.

In addition to synergism the speaker also gave some examples of deactivation.

A paper on "The Role of Chelating Agents in Detergent Compounds," presented by John J. Singer, Jr., of Hampshire Chemical Corp., Nashua, N. H., concluded the program.

HIGHLIGHTING the general session, the morning of May 17, in addition to reports of CSMA secretary, A. A. Mulliken; treasurer, Frederick G. Lodes, Lodes Aerosol Consultants, Inc.; and counsel, John D. Conner, were two papers dealing with hazardous substances labeling.

The first paper, "Factors Relating to Accidental Ingestion Hazard," by R. Owen Carter and John F. Griffith, of Procter & Gamble Co., Cincinnati, pointed out that the safety record of household products covered by the Federal Hazardous Substances Labeling Act is "quite a good one," contrary to impression given by recent publicity. This statement is based on a review of available ingestion and death statistics for the U. S.

"Some over-zealous supporters of legislation to regulate household products have used exaggerated incidence figures for accidental poisonings," according to Dr. Carter, who presented the paper.

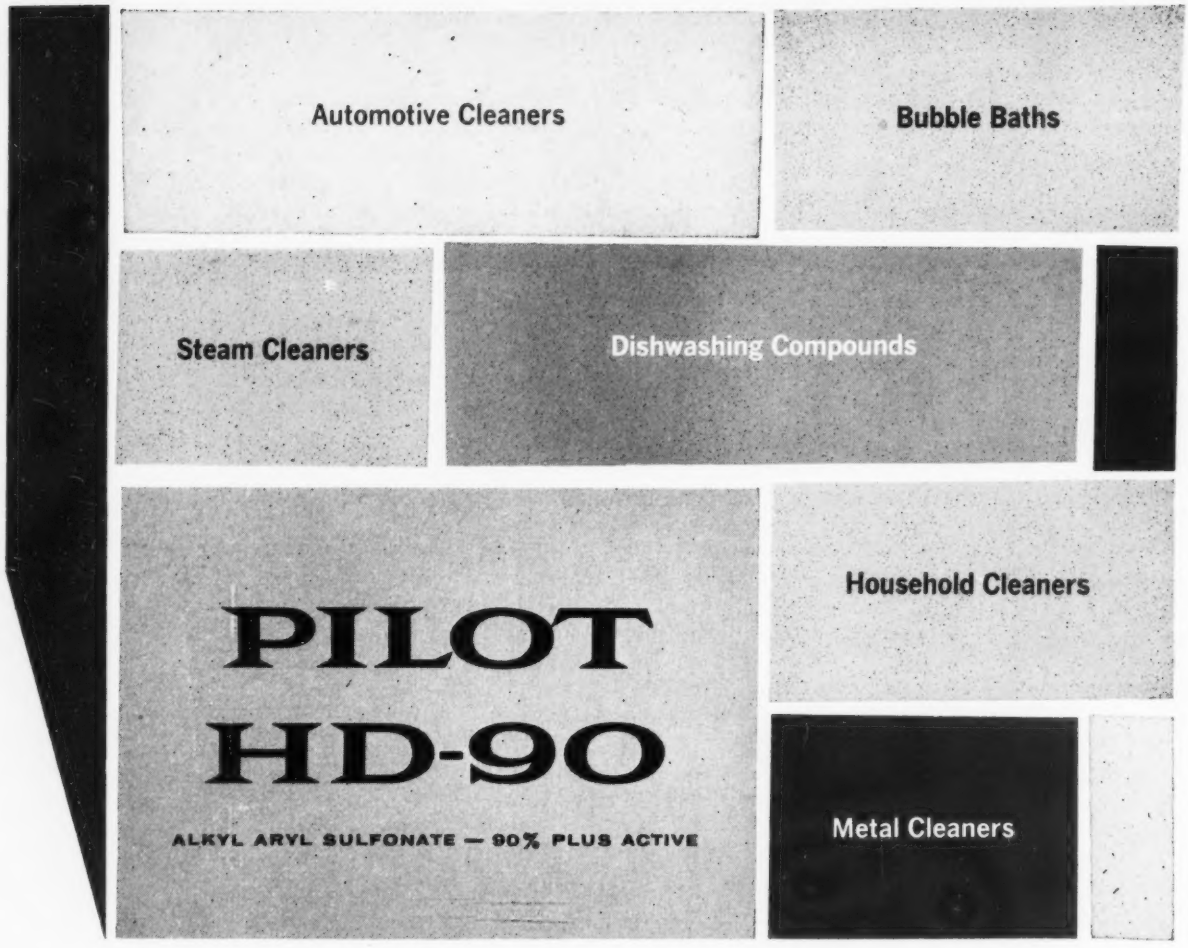
On the subject of assessing ingestion hazard of any product, Dr. Carter stated that "by far the best basis . . . is human experience." However, "when relevant human experience is not available, assessment requires consideration of a relatively large number of potentially important factors, including acute oral toxicity, corrosiveness, emetic efficacy, physical properties, and size and type of package. Blind reliance on acute oral toxicity values for safety judgments and labeling decisions, except in the case of highly toxic substances, can be misleading and in fact, is likely to be so."

"The volume of a normal human swallow," according to Dr. Carter, "can serve as a rational basis for setting a presumptive limit for defining a 'toxic' product for labeling purposes."

He also indicated that "consumer education, coupled with adequate product labeling, is needed to reduce materially the number of accidental ingestion incidents in the home. A well organized poison control center program which has the understanding and cooperation of industry appears to be the best means for reducing illness and death when hazardous substances are ingested, as they will be regardless of efforts to prevent it."

The danger of over-labeling, if the proposed regulations to the Federal Hazardous Substances Labeling Act were to be adopted in the form proposed April 29, was cautioned against by Dr. Emil G. Klarmann, at the general session, May 17. Dr. Klarmann is vice-president in charge of technical services of Lehn & Fink Products Corp., New York, and chairman of the Precautionary Labeling Committee of CSMA.

"If these regulations are promulgated in their present form," Dr. Klarmann declared, "they could weaken rather than strengthen the campaign to educate users of household products to the risks of careless handling or use of hazardous household products, by ultimately generating indifference to cautionary labeling.



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HD-90 is a drum-dried sulfonate flake that is dust-free, dry flowing, colorless and odorless; and these fine properties stay that way even after long periods of storage or climatic changes.

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Pilot HD-90, an excellent *hard surface cleaner* "as is," will formulate all sorts of *specialty cleaners* that dry clear without sulfate residues.

High-foam-per-pound-of-active makes HD-90 ideal for such products as *scouring powders* and *bubble baths!* The high organic and blandness of HD-90 is desirable for *cosmetics, dishwashing liquids, etc.* HD-90 may be used to increase the concentration of sulfonate active in *dry mixes* which have been "dry neutralized" from Pilot ABS-99 Sulfonic Concentrate.

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Sulfonate Liquids
Sulfonic Concentrates

James Joins Pilot Chemical

Richard E. James recently joined the sales force of Pilot Chemical Co. of California, Los

Richard E. James

Angeles, producer of surface active agents and detergent raw materials. Mr. James is responsible for sales of high active cold "Sulfonated Pilot ABS-99," "Sulfonic Acid" and "Pilot HD-90 Detergent Flake" in 11 western states.

He has been associated with chemical sales in the southern California area for the past eight years, both as a representative for the Braun Chemical Co., Los Angeles, and in his own business.

—★—

Purex — Washburn Merger

A. C. Stoneman, president of Purex Corp., Ltd., South Gate, Calif., and Linus O. Smith, president of T. F. Washburn Co., Chicago, announced May 16, the consolidation of their firms through an exchange of stock. The transaction involves the exchange of one share of Purex preferred stock for each share of Washburn Class A or Class B preferred stock, and the exchange of .42 of a share of Purex common stock for each share of Washburn common stock.

Washburn Co., founded in 1886, produces and markets varnishes and protective coatings, paint vehicles, polymers, resins and dryers, and a complete line of private label floor finishing materials for distribution to the sanitary supply industry. It will function as a wholly owned subsidiary of Purex and will continue operations under the direction of its present management. Washburn reported sales of $3,427,000 during the 1960 calendar year and sales of $972,000 for the first quarter of 1961. Some years ago the company produced the first anti-slip wax using Du Pont's "Ludox." It is also the developer of a thixotropic form for paint vehicles, which it markets under the trade name "Burnok," and concentrated polymer-type floor finishes which can be shipped as 40 per cent solids.

Purex is a major manufacturer of household cleaning products and cleaning products for industry. Its consolidated net sales for the year ended June 30, 1960 were $79,647,277.

—★—

Hosts Consular Offcials

Western Petrochemical Corp., New York, was host to 26 Chicago consular officials, representing 21 countries, who attended the 47th mid-year meeting of the Chemical Specialties Manufacturers Association, held in Chicago last month.

Countries represented were: Canada, Chile, China, Greece, Germany, Guatemala, Iceland, Ireland, Israel, Italy, Liberia, Mexico, Norway, Panama, Paraguay, Peru, Poland, Sweden, Turkey, Uruguay, and Yugoslavia.

John G. Alexander, first assistant secretary since September 1960, was recently appointed secretary of Olin Mathieson Chemical Corp., New York. He succeeds Robert E. McCormick, who becomes a consultant. Mr. Alexander joined the firm in 1953, and was named associate counsel in May 1957.

Honored by 25 Year Club

Eight new members of the Quarter Century Club of Lehn & Fink Products Corp., New York,

Joseph Gilbert

were honored by the club membership at its ninth annual meeting held May 15th at the Waldorf-Astoria Hotel.

The guest of honor was Joseph Gilbert who will reach his 50th anniversary with the firm July 11, when he will retire from his present position of general credit manager at the Bloomfield, N. J. plant. He is eighth of the Lehn & Fink employees to have reached this point of service.

The new club members are: Jean Zignorski; Mary Galabrese; Audrey Atkinson; John R. Goss; John S. Malone; Clare O'Brien; Frank Malinski, Jr. and Herbert Y. Nash.

—★—

Dow Names Strouss

John P. Strouss has been appointed chemicals district sales manager in the New York office of Dow Chemical Co., Midland, Mich. He succeeds Frank H. Sellars, who recently was named sales manager of Dow's New Orleans office.

Mr. Strouss, who started with the company in 1947, has spent nearly eight of his years with Dow in sales of automotive products. He joined the antifreeze sales group in July, 1953, and was named manager of automotive chemicals sales in 1958.

SOME ACHIEVEMENTS

HAVE NEVER BEEN EQUALLED

OLDEST SURVIVOR—Called the first wonder of the world, a group of three pyramids outside modern Cairo is the only surviving of the Seven Wonders of the World. The exact date of the construction of the original pyramid is unknown but has been estimated at as early as 4700 B.C. and as late as 2900 B.C. The group of three still remains as a tribute to the construction know-how of the early Egyptians before the era of modern equipment.

Not everything can be expected to last as long as the pyramids but until something better comes along Pine Oil continues to set the pace as a leading ingredient for the soap and detergent industry. Someday someone may even invent a better all-round blending ingredient where high solvent performance is required.

Pine Oil's exceptional wetting properties, bactericidal properties, and safety make it one of the most important raw materials used in the manufacture of liquid detergents, soaps, laundry aids, general cleaners, disinfectants and deodorants. There are two good reasons for this . . . *Pine Oil smells clean . . . Pine Oil cleans clean.*

Look to Hercules for all the Pine Oil you need, because when everything is considered, Pine Oil still remains an outstanding ingredient for many diversified uses. Technical data available by writing to Hercules.

	Kauri-Butanol Value
Pine Oil	500+
Toluol	105
Naphtha, H.A.	95
Turpentine	55
Naphtha, VM&P	34
Mineral Spirits	32
Kerosene	23

Pine Chemicals Division, Naval Stores Department

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Hooker Appoints Two

W. Newell Wyatt's appointment as manager of market development of the phosphorus division was announced recently by Hooker Chemical Corp., New York. At the same time Prescott S. Olmsted, former administrative assistant to management, was named to succeed Mr. Wyatt as the division's manager of sales administration. Both men are located at division headquarters in Jeffersonville, Ind. Their appointments became effective May 15.

In his new post Mr. Wyatt is responsible for development of markets for new products, and their subsequent transfer to field sales. He will also survey industrial needs to guide the company's research department and will assist in overall marketing programs for the division's products. In 1954 Mr. Wyatt joined the former Shea Chemical Corp. as assistant director of sales for industrial chemicals. When Shea merged into Hooker as the phosphorus division in 1958, he became midwest sales manager for industrial chemicals, within the division. He has been manager of sales administration, for the past two years.

Mr. Olmsted is now responsible for developing, organizing and supervising the administrative functions of the phosphorus division sales department. He has been with Hooker at Niagara Falls, N. Y., since 1945. Mr. Olmsted was supervisor of sales control records for seven years, sales department office manager from 1952 to 1956.

Prescott Olmsted

W. Newell Wyatt

—★—

Breck Ups TV Advertising

John H. Breck, Inc., Springfield, Mass., recently increased the scope of its television advertising by assuming a participating sponsorship of the new, nationally televised "Way Out" programs. Breck preparations advertised on the show include the three "Breck" shampoos and both liquid and cream "Banish" dandruff treatment shampoo.

—★—

Two Join P&G Research

Harry L. Ritz and H. Whitney Wharton have joined the research division of Procter & Gamble Co., Cincinnati, it was announced recently. Both men hold Ph.D. degrees, Mr. Ritz from Ohio State University and Mr. Wharton from Iowa State University.

—★—

Golfing Dates Set

The Chicago Perfumery, Soap and Extract Association, Inc., has announced the following dates for their "Par-Busters" golfing auxiliary, to be played on the following courses:

Tuesday, May 23—River Forest Golf Club, Elmhurst, Ill.; Tuesday, June 20—Thorngate Country Club, Deerfield, Ill.; Thursday, July 27 — Itasca County Club, Itasca, Ill.; Thursday, August 17 — the annual "Swing Party" for ladies including a dinner dance, Glen Flora Country Club, Waukegan, Ill.; Thursday, Sept. 14 — Calumet Country Club, Homewood, Ill.

Stauffer Name Kettle

James W. Kettle, vice-president of finance, Stauffer Chemical Co., New York, was recently appointed assistant general manager of the company's Victor Chemical Works division, Chicago.

James W. Kettle

It was also announced that T. G. Everett and R. N. Stillman will continue as Stauffer treasurer and controller, respectively. L. F. Cumming, formerly assistant vice-president of finance, has been appointed secretary and assistant controller of the company, and P. S. Bedrossian has been appointed assistant treasurer.

—★—

Canadian Beauty Show

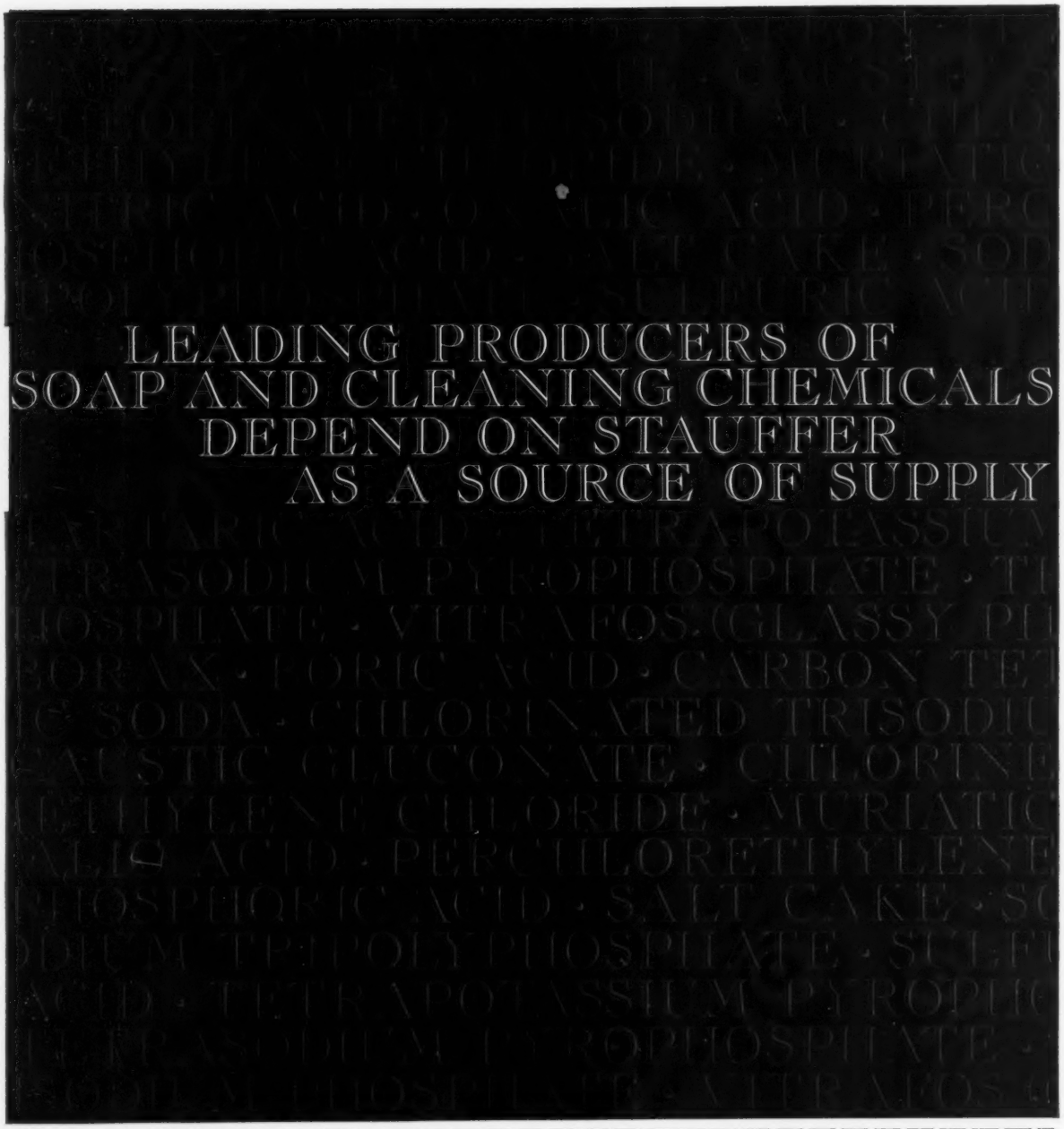
The first annual Canadian charm and beauty show will be held June 14-17, in the Queen Elizabeth Building, Exhibition Park, Toronto. For the first time perfumeries, cosmetic, toilet goods and beauty preparation houses in Canada, will gather under one roof.

—★—

Kiehl C-P Consultant

The appointment of John Kiehl as a consultant to the perfumery section of the research and development department of Colgate-Palmolive Co., New York, was announced recently. Mr. Kiehl had been chief perfumer at Colgate for more than a decade, prior to his retirement in 1951.

Working in his own laboratory in Willsboro, N. Y., he will assist in developing new ideas for perfumes and flavors.



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Moore Heads Arizona

Dr. L. Patrick Moore has been elected president of Arizona Chemical Co., New York, effective

L. P. Moore

July 1, it was announced recently. Arizona is a joint venture of American Cyanamid Co., and International Paper Co. Dr. Moore succeeds Jerrold H. Ruskin, who has been named general manager of Cyanamid's Industrial Chemicals division. Since 1958, Dr. Moore has been serving as president of the company's wholly-owned Canadian subsidiary, Cyanamid of Canada, Ltd.

Dr. Moore joined Cyanamid in 1934 as a research chemist and held various technical posts before becoming the firm's scientific representative in Europe. He later served as manager of Cyanamid's new product development department, director of development at the company's Stamford, Conn., laboratories, and as assistant general manager of the Plastics and Resins division.

—★—

Mich. Has New Algaecide

A new concentrated algaecide for use in swimming pools has just been announced by the chemical division of Michigan Chemical Corp., Saint Louis, Mich. Trade named "Algimaster" the product is subject of an application now pending before the U. S. Patent Office.

Described as a combination of algaecidal agents, "Algimaster" contains a bromine based compound as one of its essential ingredients. Said to control effectively algae in swimming pools at 2 ppm concentrations, the product is claimed to be non-toxic, compatible with chemicals commonly used in pools, and harmless to dyes of bathing suit fabrics.

—★—

Royce Acquires Sintos

Royce Chemical Co., Carlton Hill, N. J., recently acquired the processes and manufacturing facilities of Sintos Co., New York, which developed "Corobex" bacteriostat and fungistat, for use in a broad range of applications in products such as clothing, housewares, nursery products, sheeting, toys and paints.

At present "Corobex" is available as a powder or a liquid and will be marketed by the Royce Chemical sales and distribution organizations under the direction of former Sintos management.

—★—

Johnson Product Tops

According to a recent market study by an independent research organization, "Holiday" car washing cream, introduced nationally by S. C. Johnson & Son, Inc., Racine, Wis., last April, has become the top-selling auto care product in the country. Its success is attributed to the fact that it was the first product enabling the consumer to wash, deep-clean and polish his auto in an easy cleaning and wipe off operation, the company states.

Coupled with "Holiday" for seasonal promotion will be "Instant J-Wax," said to outsell all other push button car waxes.

Atlas on Aerosols

(*From Page* 153)

cialized in this field, have added substantial laboratory facilities and quality control staffs, have invested heavily in a broad range of aerosol production equipment, and keep their plants and their technical staffs up to the minute," Mr. Atlas concluded.

Fritzsche Appoints Wood

Fritzsche Brothers, Inc., New York, recently announced the appointment of Peter Wood, newly

Peter Wood

elected vice-president, as director of its flavor division. Mr. Wood was formerly associated with the Sunkist Growers of California since 1954.

Officers elected for the coming year are: John L. Cassullo, president; Frederick H. Leonhardt, Jr., vice-president; Ernest Guenther, vice-president; Edward E. Langenau, vice-president; Lidcay Herrera, vice-president for export operations; Julius P. Bauer, vice-president; Peter Wood, vice-president; Ellis F. Merkl, secretary and treasurer; Arthur J. Hemminger, assistant secretary; and Emil C. D'Andrea, assistant treasurer.

The company also announced the election of the following directors: John L. Cassullo, Ernest Guenther, Frederick H. Leonhardt, Jr., William H. Mathers and Ellis F. Merkl.

—★—

Yardley Names Two

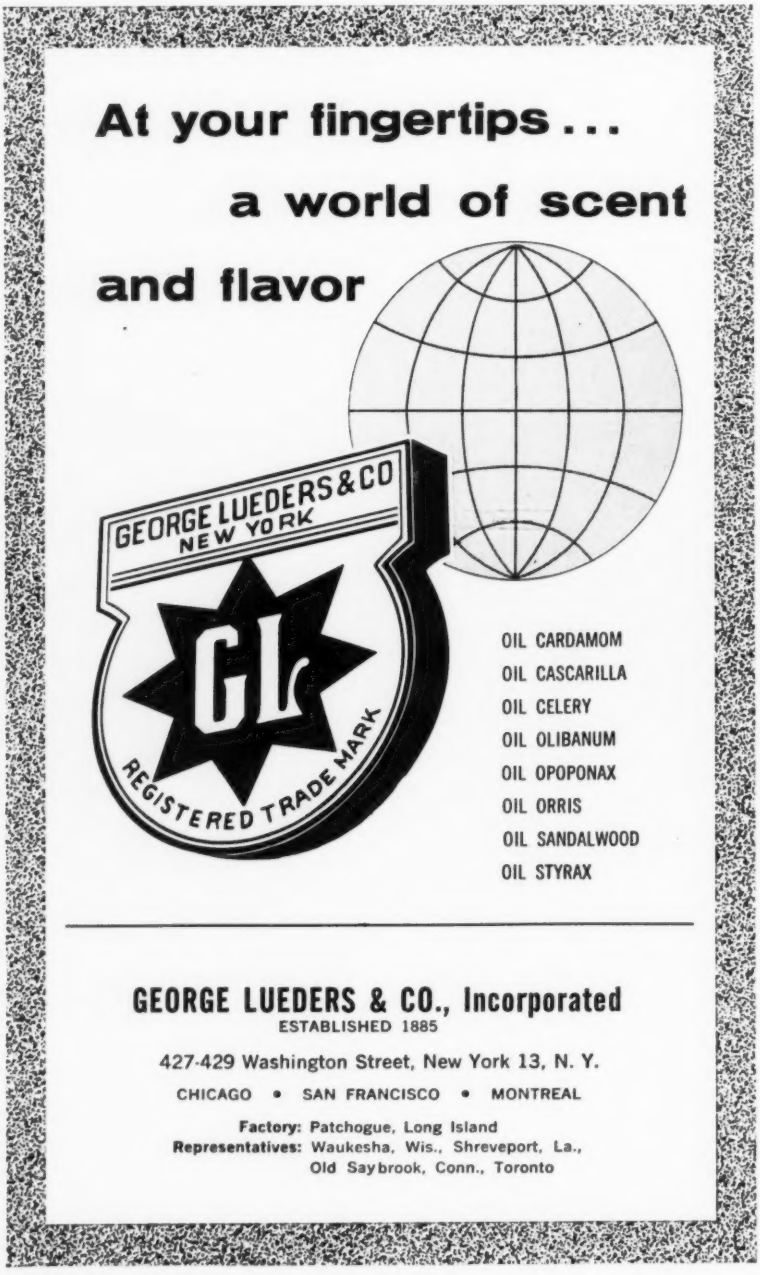
Yardley of London, Inc., New York, recently announced two changes on its executive sales staff. Donald R. McLennan was advanced to manager of the wholesale division. Robert D. Spier was named as manager of chain store sales, the position formerly held by Mr. McLennan. Prior to his advancement, Mr. Spier was the firm's New England regional manager.

Ultra Starts Chicago Plant

Ultra Chemical Works, Inc., Paterson, N. J., a wholly owned subsidiary of Witco Chemical Co., New York, announced late in April that its new synthetic detergent plant in Chicago is now fully on stream.

The $1,600,000 facilities boost the firm's detergent manufacturing capacity by 60 per cent. Equipment at the Chicago installation includes a continuous process sulfonation unit; a bidirectional spray drier; a "Dracco" pneumatic materials handling system; and high speed packaging machinery.

Ultra's line includes basic surfactants and detergents for industrial uses and packaged household detergents, both dry and liquid, for private label distribution. In addition to its detergent operations in Paterson and Chicago, Ultra makes toluene and xylene sulfonates at facilities located in Los Angeles.



Two Williams Injunctions

J. B. Williams Co., New York, manufacturer of soap and toiletries, recently obtained permanent injunctions against State Street Mill Bargain Center, Utica, N. Y., and Sav-Mor Drugs, Bethesda and Wheaton, Md.

The Superior Court of New York State issued the injunction enjoining the Utica firm from violating fair trade minimums on products manufactured and distributed by Williams.

The U. S. District Court for the District of Maryland issued the injunction which permanently enjoins Sav-Mor Drugs from advertising, offering for sale or selling any of Williams products in Maryland at prices below those stipulated by them.

—★—

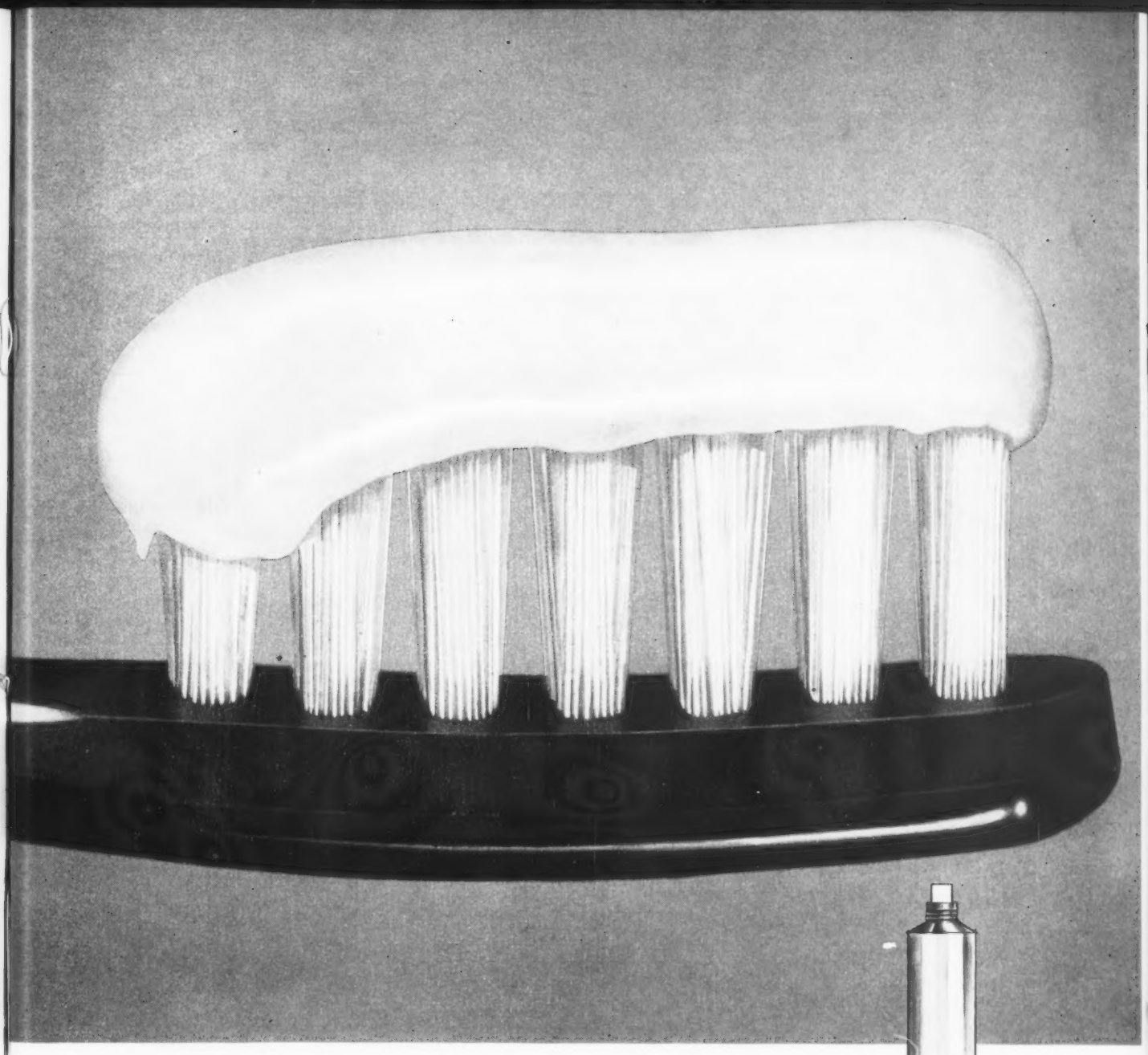
Breck T-V Series Awarded

The Breck "Family Classics" series of television "Specials," sponsored by John H. Breck, Inc., Springfield, Mass., was named "Best New Program Idea" in the recent 19th Annual All-American Awards of the Year, as selected in *Radio-Television Daily's* poll of critics and editors. Preparations advertised on "Family Classics" include: "Breck Shampoo for Dry Hair," "Breck Shampoo for Oily Hair," "Breck Shampoo for Normal Hair," "Breck Hair Set Mist," "Breck Banish Dandruff Treatment Shampoo" and "Breck Creme Rinse."

—★—

Detergent Firm Expands

Completion of a $100,000 expansion program, doubling its size and production capacity, was announced recently by Monarch Chemicals, Inc., Minneapolis, Minn., manufacturer of detergents for food, beverage and agricultural industries in the midwest. Improvements include a 4,000 square foot addition to house mixing equipment and package assembly lines, an automatic bulk handling system, two 60,000 pound tanks, a railroad spur and conveyor equipment.



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Olin propylene glycol U.S.P.

Be sure the last squeeze out of the toothpaste tube has the same moisture content as the first. Propylene glycol U.S.P. is an accepted, economical additive, for a long list of chemical specialties, cosmetics and pharmaceuticals. It is listed as "safe" by F.D.A. Use this colorless, odorless, hygroscopic liquid with confidence. It's ideal as a softening agent, ointment base, preservative, humectant and emollient. We'll be pleased to help you apply it to your formulations. Call your local Olin distributor, or write OLIN MATHIESON, Organics Division, 745 Fifth Avenue, New York 22.

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sodium tripolyphosphate
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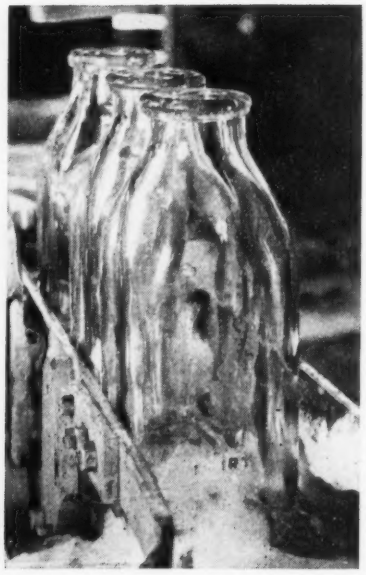
Such variety gives you maximum flexibility in meeting your processing needs.

You save on shipping costs, too, because two or more of these consistently uniform alkalies can be ordered *together* in mixed carloads or mixed truckloads. One order, one billing, one responsibility—cuts buying and bookkeeping.

Your process requirements may have reached the point where a change in alkali form, grade or strength will spell savings for you. Our representative knows the economics of these alkalies. He can relate to your needs the most advantageous of 10 different forms and grades of caustic soda, 13 forms and grades of caustic potash, and 7 forms and grades of carbonate of potash. Just write the nearest Hooker sales office.



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Hooker sodium tripoly is made by our Phosphorus Division. You're invited to write to the Division's headquarters at Jeffersonville, Ind., for more information on this product.

NEW SOURCE FOR YOUR TKPP NEEDS

Now you can obtain tetrapotassium pyrophosphate from our Phosphorus Division plant in Jeffersonville, Ind.

Hooker tetrapotassium pyrophosphate has high sequestering power. Formulated into your heavy-duty liquid detergent, it has the power to dig in deep to draw out dirt. No matter how badly soiled an article, dirt can't be redeposited or adhere to cleaned fabrics.

Solid form assays 99.0% $K_4P_2O_7$ and is available in granular and powder forms. Also available as a 60% solution.

Hooker TKPP doesn't vary in quality. It's compounded from phosphoric acid and caustic potash, both made by Hooker, specialists in phosphorus and potassium chemistry.

Our TKPP data sheet will give you more complete technical information. Just check the coupon.

For more information, check off data sheets you want and mail this coupon with your name, title and company address.

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☐ Sodium tripolyphosphate

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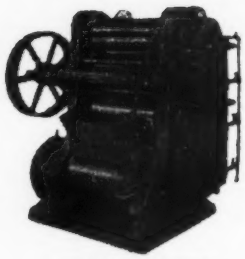

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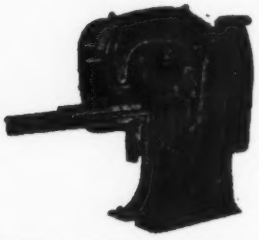
3 Roll — 4 Roll — 5 Roll
STEEL and Granite Rolls



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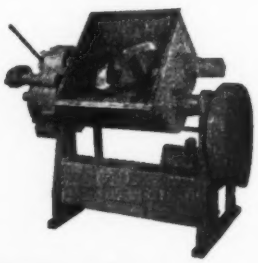

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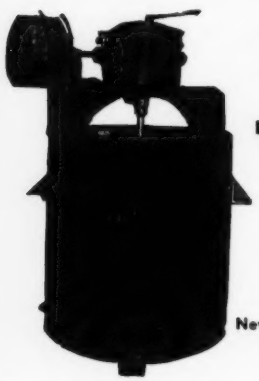

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Manufacturers Representative: Long established manufacturer desires additional distributorship in selected areas. Soaps, detergents, maintenance cleaners for janitorial suppliers, laundry, industrial, etc. Address Box 600, c/o *Soap*.

Production Supt.: Chemical Engineer, production and packaging of spray dried detergents. Must be capable of complete manage- of medium size plant, three shift operation. Responsible for scheduling raw materials, and production, shipments, quality control, personnel, cost reduction, product improvement, maintenance and purchase of equipment. Address Box 623, c/o *Soap*.

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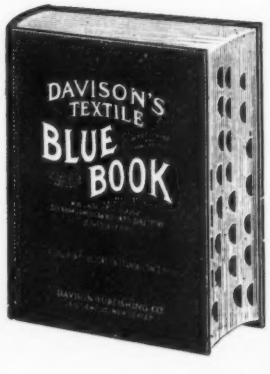

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Packaging: New York chemical concern established 1931, seeks contracts from either prime contractors or subcontractors for custom packaging of all types of chemicals, insecticides, fumigants, cleaners, etc. Address Box 587, c/o *Soap*.

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For Sale: By I. E. Newman, 818 W. Superior, Chicago, Ill., CH-3-1425. Mixers. Marion-Munson, sizes 50# to 10,000# Crutchers — 1,000-8,000#; Wrapper Type S; Auto Cutting Table; Bucket Elevators, Mills, Cutters, Crushers, Soap Equipment. Prices on request.

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For Sale: Buflovak 42" x 120" dbl. drum dryers, Sharples #16V inconel soap centrifugals, Hope single piston stainless filler. Perry Equipment Corp., 1410 N. 6th St., Phila., 22, Pa.

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Lehn & Fink Earnings Up

Lehn & Fink Products Corp., New York, recently reported a rise in sales, earnings, and income for the first quarter of 1961. Earnings per share were up from $1.11 in 1960 to $1.13 this year. Sales increased to $9,960,744, from $8,533,398, and income rose to $426,359, from $373,517 in 1960.

The company reported on its financial standing for the nine months ended March 31. Earnings per share were up from $3.39 in 1960, to $3.47 in 1961. Net sales increased to $29,007,119, from $25,862,725, and income was up from $1,139,503 in 1960, to $1,307,375, for 1961.

Entomological Publications

Journal of Economic Entomology

This periodical contains reports on the latest research and advances in the applied aspects of entomology. There are six bimonthly issues per calendar year, beginning in February. Currently Volume 54 is being issued. The Journal of Economic Entomology is the outstanding periodical in its field.

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Annual Review of Entomology Volume 6

Volume 6 of this series appeared in January 1961. The five previous volumes, which are still available, established the high standards of the Annual Review of Entomology.

Price to organizations and non-members: $7.00 per copy postpaid in the U. S. A., $7.50 per copy elsewhere.

Miscellaneous Publications of the Entomological Society of America

This new periodical contains timely and scholarly articles of 20 printed pages or more. The individual numbers appear at irregular intervals. Each volume will contain about 200 pages.

Volume 1, Number 1, pp. 1-32 appeared October 1, 1959, and contains the symposium papers on Insecticide Resistance in Arthropods of Medical and Veterinary Importance given at the Salt Lake City meeting in December 1958. Authors H. F. Schoof, R. B. March, A. W. A. Brown, and Herbert Knutson. Single copy, $2.50.

Volume 1, Number 3, pp. 69-171 appeared July 27, 1960 and contains the following: "Swarming and Mating in Mosquitoes," by Erik Tetens Nielsen and James S. Haeger. "A Revision of the Genus *Chlaenius* Bonelli (Coleoptera, Carabidae) in North America," by Ross T. Bell. Single copy, $6.00.

Volume 2, Number 1, pp. 1-175 appeared October 19, 1960 and contains the 23 papers presented at the Symposium — Research Progress on Insect Resistance held at Washington, D. C., October 7 and 8, 1959. Single copy, $7.50.

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As Reader Sees It

(*From Page 41*)

In order to avoid having the publication reach readers before the meeting, we hold up the mailing of the convention issues until at least the first day of the meeting.

Actually, the nearly complete programs for the midyear and annual meetings of CSMA appear in the issues of SOAP & CHEMICAL SPECIALTIES *for each of the months immediately preceding the conventions, i.e., April & November. Ed.*

—★—

Carter D. Poland Dies

Carter Durwood Poland Sr., 72, owner and president of Poland Soap Works, Anniston, Ala., died May 13th at the Anniston Memorial Hospital, following a short illness. Mr. Poland, a native of Texas, moved to Anniston in 1911.

He had been a director of the American Association of Soap and Glycerine Producers, and a charter member of the National Council of the National Planning Association. He also served on the National Speakers' Bureau of the Advertising Federation of America, and had written articles for such publications as *Printers' Ink* and U. S. Chamber of Commerce's *Nation's Business*.

Mr. Poland and his wife, Mrs. Winnie Mitchell Poland, recently celebrated their 50th wedding anniversary. He is also survived by three daughters, Misses Martha of Anniston; Mary of New York City; and Ann of Atlanta, Ga.; a son, Carter D. Poland, Jr., of Lakeland, Fla., and two grandchildren.

—★—

DCAT Reorganizes

The Drug, Chemical and Allied Trades Association, which began as a section of the New York Board of Trade in 1890, was incorporated on May 2 as a membership corporation under the laws of New York State. It has been admitted as an Associated Trades Organization member of the New York Board of Trade, which amended its By-Laws to allow independent membership organizations to become Associated Trades Organization members. DCAT has 800 member firms in all branches of the drug, chemical and allied trades in 39 states, Mexico, Newfoundland and Canada.

TGA Section

(*From Page 93*)

horny layers, glycerine greatly enhanced their water uptake under the conditions of the experiment, Dr. Flesch reported.

"The Use of Hairless Mice for Study of Cosmetics," by F. Homburger, A. Treiger, J. R. Baker, and C. M. Crooker of Bio-Research Consultants, Inc., was presented by Dr. Homburger. The authors reported that both local and systemic response to topical applications can be demonstrated on the skin of these animals and that these findings can be used for the screening of hormone and other biologically active personal

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products intended for use on the human skin.

Instrumental analysis of essential oils was the subject of two contributions. James A. Rogers, Jr., and Zoltan E. Toth of Fritzsche Brothers, Inc., New York, discussed "Instrumental Evaluation of Commercial Citronellols and Geraniols and Their Esters." Components of these citronella oil derivatives were separated by preparative gas chromatography and then identified by infrared spectrophotometry, the authors reported.

Nuclear magnetic resonance is a new analytical tool for the elucidation of molecular structure enabling investigators to study very closely related compounds. Application of this new method to the essential oil field was described in a paper on "The Ionones and Methyl Ionones; a Structure Study via Nuclear Magnetic Resonance," by Ernest T. Theimer and Seymour Lemberg, International Flavors & Fragrances, Inc., Union Beach, N. J. By this technique a previously unidentified component in commercial methyl ionone has been isolated, the authors reported. The presence of this component had been observed some time ago by vapor-phase chromatography. Structure of the newly isolated substance was assigned by a combination of vapor-phase chromatography, infrared, mass spectrometry and proton magnetic resonance.

"Some Technical Problems in the Color Additives Field" was the title of a talk by G. Robert Clark, Division of Cosmetics, Food and Drug Administration, Washington, D. C. Problems presented by the need for review of established certified colors and new certifications were discussed by Mr. Clark. Standardization of analytical methods for the qualitative and quantitative evaluation of lipstick colors and other color additives is a huge task in view of the diversity of these products. Establishment of specifications and standardized chemical identities for cosmetic colors are problems of great urgency.

"The Skin Respiration Factor: Evaluation of Various U.S.P. Ointments," by Henry Goldschmiedt, Institute of Applied Biology, New York, and Irwin I. Lubowe, M.D., was presented by Dr. Lubowe. Skin respiration may be regarded one of the criteria of the skin's health and also as a yardstick of therapeutic effects of topical applications. The authors described a method for the measurement of skin respiration by a manometric technique involving the use of the "Warburg Apparatus."

Patricia Miller of Bristol-Myers Products Division, Hillside, N. J., was elected vice-chairman of the Scientific Section. Miss Miller succeeds Donald Dean of Shulton, Inc., Clifton, N. J., who becomes chairman of the section, succeeding Herbert Heinrich of Coty, Inc.■

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New officers of the Institutional Research Council, Inc., are left to right: assistant treasurer, Mrs. Mary Clagett, National Executive Housekeepers Association, Inc.; treasurer, R. H. Laver, Hospital Bureau, Inc.; president, Forrest F. Carhart, Jr., American Library Association; vice-president, H. H. Mobley, American Motor Hotel Association; and secretary, J. S. Fassett, American Hotel Association.

IRC Holds First Meeting

The newly formed Institutional Research Council, Inc., New York, which held its first meeting recently, formulated plans for sponsoring research projects and for participating in the standards projects of the American Standards Association. The council will assume operation of the certified products program formerly sponsored by the American Hotel Assn. and will develop standards for paper towels, toilet tissue and paper napkins in order that manufacturers of the products may submit them for inclusion in the 1962 Certified Products List.

The board of directors voted to contact the leading trade associations in the mattress field and offer to cooperate in the development of laboratory methods for testing mattresses.

It was also announced that Foster D. Snell, Inc., 29 West 15th St., New York, has been named technical consultants and official testing laboratory for the Council.

★

Handles Brighteners

Robert J. Holmes was recently named to the newly created position of acting product manager of the "Blancophor" product line of optical brighteners for soap and other products by General Dyestuff Co., a division of General Aniline & Film Corp., New York. Previously he had been product engineer of the surfactants and related chemicals department of Antara Chemicals, another GAF division. The "Blancophor" line was recently transferred from Antara to General Dyestuff Co.'s marketing group.

Mr. Holmes joined General Dyestuff in 1954 in the commercial development department, remaining there until 1957, when he left to join a printing ink firm. He rejoined GAF in 1958.

★

New Staley Sequestrants

Two new "Seqlene" brand sequestrants, "Fe-900" and "Fe-1300," are now available in commercial quantities from A. E. Staley Manufacturing Co., Decatur, Ill. "Seqlene" sequestrants are designed as bottle and equipment cleaning agents marketed by Staley under an exclusive contract distributorship agreement with Pfanstiehl Laboratories, Inc., Waukegan, Ill. "Seqlene" sequestrants are now commercially available in two liquid series and one dry form.

Aerosol Space Sprays

(*From Page* 144)

expect too many startling developments or formulation changes based on improved or newly-introduced insecticides. The next major step in pressurized and aerosol insecticides will undoubtedly center about the development of new propellant systems, inexpensive solvents, and improved valving systems.■

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COMING MEETINGS

American Chemical Society, 140th national meeting, Chicago, Sept. 3-8.

American Oil Chemists Society, national meetings, Pick Congress Hotel, Chicago, Oct. 30-Nov. 1, 1961; Roosevelt Hotel, New Orleans, May 7-9, 1962.

Canadian Manufacturers of Chemical Specialties Association, fourth annual meeting and conference, Royal York Hotel, Toronto, Oct. 30-Nov. 1.

Chemical Industries Exposition, Coliseum, New York, Nov. 27-Dec. 1.

Chemical Specialties Manufacturers Association, 48th annual meeting, Roosevelt Hotel, New York, Dec. 4-6, 1961; 48th midyear meeting, Drake Hotel, Chicago, May 14-16, 1962.

Chemical Specialties Manufacturers Association, Golf Tournament, Knollwood Country Club, Elmsford, N. Y., June 27.

Chicago Perfumery & Extract Ass'n, Par-Busters' Golf Outings, Thorngate C. C., Deerfield, Ill., June 20; Itasca C. C., Itasca, Ill., July 27; Swing Party, Glen Flora C. C., Waukegan, Ill., Aug. 17; Calumet C. C., Homewood, Ill., Sept. 14.

Drug, Chemical and Allied Trades Association, annual meeting, Pocono Manor Inn, Pocono Manor, Pa., Sept. 14-17, 1961.

Eastern Housewares Show, Coliseum, New York, Aug. 7-10.

Federation of European Aerosol Associations, 3rd International Congress, Lucerne, Switzerland, Oct. 3-8.

National Chemical Exposition, Amphitheater, Chicago, Sept. 5-8, 1961.

National Agricultural Chemicals Association, annual meeting, Homestead, Hot Springs, Va., Oct. 29-Nov. 1.

National Hotel Exposition, Coliseum, New York, Nov. 6-9.

National Pest Control Association, annual convention, Deauville Hotel, Miami Beach, Fla., Oct. 16-19.

New York Premium Show and Premium Advertising Conference, New York Coliseum, Sept. 25-28, 1961.

Packaging Institute, 23rd annual national packaging forum, Biltmore Hotel, New York, Oct. 18-20.

Packaging Machinery Manufacturers Institute, (PMMI) fourth annual show, Cobo Hall, Detroit, Nov. 7-10, 1961.

Society of Cosmetic Chemists, annual seminar, Barbizon Plaza Hotel, New York, Sept. 26-27; annual meeting, Biltmore Hotel, New York, Nov. 28; Chicago Chapter, monthly meetings, Henrici's Restaurant, Merchandise Mart, Sept. 12; Oct. 10, Nov. 14.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, June 13; Sept. 12; Oct. 10; and Nov. 14.

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tale ends

A STOREKEEPER in Manchester, England, so the news tells us, has set up a factory in an abandoned church and is turning out 45,000 boxes of "Brand X" soap powder a day. The gentleman in question, one Charles Terry, feels that his soap product gives clothes "a perfectly adequate wash." Maybe this rather conservative estimate of the washing qualities of the product is in keeping with the old Brand X psychology, second best. We can't imagine any American manufacturer of soaps or detergents ever admitting that his product gives merely an "adequate wash." Terry is already in the law courts protecting his "Brand X."

* * * * *

If you are in New England this summer, don't miss a visit to the Yardarm Inn in Scituate Harbor, Mass. This famous old Yankee hostelry has been purchased by Mr. and Mrs. Gordon Baird. Mr. Baird is chairman of Baird & McGuire, Inc., Holbrook, Mass., and they tell us he is taking a flyer in the restaurant business to keep himself busy. Anne Baird, wife of the chemical manufacturer, is manager and hostess of the restaurant. We are also informed that for visitors from the industry, Mr. Baird is liable to break down and buy a drink. Pleasant prospect!

* * * * *

Public demand is constantly changing and with it so is brand advertising. In 1956, Procter & Gamble advertised 32 different branded products on television. In 1960, P & G had 45 brands on television, 19 of which were not on TV in 1956. Only 23 brands were advertised on TV throughout the full five-year period. New products replace old products in the complexity of changing public demand. In the highly competitive field of soaps and detergents, new products appear to be the lifeblood of sustained sales.

* * * * *

Arthur H. Carter, the grand old man of the Canadian chemical and chemical specialties industries, has found a new love. Following his retirement recently from John Struthers & Co., Ltd., Montreal, after 50 years in the chemical business, Arthur is devoting most of his time now to promoting "Pops" concerts in Montreal. The first one, which was held recently, drew close to 11,000. Arthur expects to put on about 10 such concerts each year. He received a telegram of congratulations after the first concert from Arthur Fiedler, Boston conductor, who popularized "Pops" concerts in the U. S.

* * * * *

You missed something if you didn't visit the suite of CSMA prez, Charlie Beach of John C. Stalfort & Sons, during the midyear meeting at the Drake. Charlie and Mary Selma (Mrs. B.) were "shacked" up in the suite occupied by Queen Elizabeth on her stopover in Chicago last summer. In a hotel noted for fine suites, that occupied by the Beach's and the Queen was really tops. Incidentally, we thought Charlie won his spurs as a speaker with his president's address at the luncheon, May 17. In the course of same he had occasion to use the phrase "slate splitter." Unless you have a facile tongue those two words can come out in all sorts of odd ways. Charlie handled them masterfully.

* * * * *

Recently phone calls at Precision Valve office in Yonkers, N. Y. for Gordon Gilroy, sales manager, received the repeated answer that said Gilroy was out of town. Then the awful truth came out! It seems that Gordon caught the chickenpox from his kids and was really laid low as is often the case when adults get this children's disease. So, the phone operator simplified matters by telling callers he was "out of town." Chickenpox, — hot dog!

* * * * *

In extolling the virtues of pine oil in household cleaners in an advertisement by Hercules Powder Co. in the March issue of this rag, the Latin name for long leaf pine is given as "Pinus Palustrus." Tain't so, gentle reader, the Pine Cleaner Information Center notwithstading. The correct Latin name is "Pinus Palustris." Incidentally, among the many inquiries received as a result of this advertisement appearing in *Reader's Digest, Soap,* et al., was one from a woman who wrote in and asked for the name of a cleaner that did NOT contain pine oil!

* * * * *

Newest member of the aerosol filling group to take up flying, we learn is Don Menhenet, head of Eveready Pressurized Products, Inc., Cleveland.

* * * * *

For the first time in umpteen years, maybe ever, Doc Hamilton, executive vice-president of Chemical Specialties Manufacturers Association, missed the banquet concluding the 47th midyear meeting in Chicago, last month. Doc left during the afternoon of the final day of the meeting to be home with his wife, Emma, who was ill. The cocktail party, banquet and subsequent proceedings went off smoothly under the eagle eyes of Al Mulliken, Gene Wilson and Lee Schapira.

* * * * *

"Zipse's East Lake Camps, Oakland, Maine," read the heading on a very attractive photo-filled folder showing beautiful lake scenes, plump bass, comfortable cottages and verdant woods. Upon further investigation we discovered that the man whose name the camp bears is none other than Bob Zipse, former manager of the insecticide division of Geigy Chemical Corp. Another familiar name associated with Bob is that of John Kennedy, who retired recently from Stauffer Chemical Co. John is director of public relations for "Zipse's East Lake Camps."

They sleepeth not. Actually, several members of the hard-working Aerosol Market Development and Publicity Committee, in session at the 47th annual meeting of CSMA in Chicago, last month, are contemplating a major step. Committee, under chairmanship of A. H. Lawrence, Jr., Freon Products Division, E. I. du Pont de Nemours & Co., Wilmington, at far end of table, is flanked by other committee members. Unposed photo shows, clockwise: Horace McKenna, Union Carbide Chemicals Co.; W. Earl Graham, Clayton Corp., back of head; Norman Odell and Bob MacDonald, (partially shown) Norman Odell division of de Garmo, Inc., public relations counsel for the committee; Mr. Lawrence; William Broisie, John C. Stalfort & Sons, Inc.; Joseph J. Tomlinson, General Chemical Division, Allied Chemical Corp.; Joseph T. Hanlon, Crown Cork & Seal Co.; Frank J. Reilly, "Soap & Chemical Specialties"; A. T. DeVera, Fluid Chemical Co., partially hidden; Douglas Atlas, G. Barr & Co., and A. R. Marks, Wheaton Plastic-Cote Corp.

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